OUTLINES

OF THE

THEORY AND PRACTICE

OF

MIDWIFERY.

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OUTLINES

OF THE

THEORY AND PRACTICE

OF

MIDWIFERY.

BY

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EDINBURGH.

FIFTH EDITION,

WITH

NUMEROUS CORRECTIONS AND ALTERATIONS.

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TO

BARTHOLOMEW PARR, M.D.

FELLOW OF THE ROYAL SOCIETY EDINBURGH,

PHYSICIAN

TO THE DEVON AND EXETER INFIRMARY, &c.

THESE

OUTLINES OF MIDWIFERY,

ARE RESPECFULLY OFFERED,

AS A SMALL ACKNOWLEDGMENT

OF THE

FAVOURS CONFERRED BY HIM,

ON

HIS MUCH OBLIGED SERVANT,

EDINBURGH, }
Dec. 12. 1795. }

THE AUTHO[R]

PREFACE.

THE Author of the following work published, in the year 1775, a short compend, entitled, ELEMENTS OF MIDWIFERY, chiefly for the use of those who did him the honour to attend his lectures. In 1783, a new impression of that treatise having been, for some time, called for, he was induced to extend his plan, so as to render the work useful to practitioners as well as pupils. With that intention he endeavoured, in the Outlines, to detail the most essential principles of the art relating to the management of women in the *pregnant* and *parturient* states.

In revising the Outlines for a fourth edition, the author found that many alterations were necessary; for some opinions he formerly entertained have been contradicted by experience, and many observations, he became convinced, required illustration. That edition, therefore, is as different from the former ones as they were from the *Elements*.

The

The Author did not live to ſuperintend this FIFTH EDITION, having been unexpectedly carried off by an inflammation of the lungs, in the 62d year of his age, on the 23d of May 1802.

The f llowing concluſion of a ſhort and imperfect account of his life, delivered to the Students of Midwifery in the Univerſity of Edinburgh, during that ſummer, by his Eldeſt Son †, is offered, for the purpoſe of holding out his example to the imitation of Young Practitioners, and not of publiſhing an eulogium upon his character.

"In this rapid ſketch, you muſt have obſerved that my dear Father, in his conduct, was regulated, as a man, by the great principles of the Chriſtian religion, and as a medical practitioner, by profeſſional zeal. In the former character, he was induſtrious, patient, prudent, temperate in every reſpect, thankful for favours beſtowed upon him; forgiving of injuries; charitable in the moſt extenſive ſenſe of the word; impartial to his family; ſubmiſſive to the will, and grateful

† The Reviſer of this Edition.

grateful for the goodneſs and mercy, of his Creator.—In the latter reſpect, he was anxious, not only to make himſelf maſter of the principles of his profeſſion, and to apply them extenſively to the relief of thoſe in diſtreſs; but alſo to appreciate, juſtly, the value of the modes of practice recommended by others; to alter them where erroneous, to improve them where deficient, and to communicate with fidelity what experience had taught him.

"I ſhall not detail to you all that reſulted from his having been ſwayed by ſuch principles; I ſhall not ſay how much, as a practitioner and teacher, he was reſpected, and as a man he was eſteemed; but I muſt take the liberty to point out the effects of this conduct upon his public ſituation and his private life.

"When he arrived in Edinburgh, he had neither fortune nor friends; yet by his own virtue and induſtry, without the aſſiſtance of relations or the cabal of party, he attained the higheſt eminence in his profeſſion.—He reared a large family in a

ſtyle

ſtyle ſuitable to his rank; and he enjoyed, throughout the whole courſe of his life, the ſublime ſatisfaction of loving his neighbour, and of loving his God.—He uniformly expreſſed his ardent wiſh, to live no longer than while he could be uſeful to his family and to the public ;—and he beſtowed his laſt moments, not in ſelfiſh attention to himſelf, but in conſulting the welfare of his patients and his family, and in expreſſing his adoration of his Creator."

Edinburgh,
Mar. 12. 1803.

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OUTLINES

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OF
MIDWIFERY.

PART I.
ANATOMY AND PHYSIOLOGY.

CHAP I.
OF THE PELVIS.

THE human ſkeleton is divided into the Head, Trunk, and Extremities. The Head includes the Cranium and Face. The Trunk conſiſts of the Spine, Thorax, and Bones of the Pelvis. The latter, which include alſo part of the Spine, are the more immediate objects of attention to the Practitioner of Midwifery.

The *Pelvis* is an irregular cavity, more nearly approaching to a cylindrical than any other figure; and is chiefly compoſed

of the *Offa Innominata*, the *Os Sacrum*, and *Offa Coccygis*. The two offa innominata conftitute the lateral and anterior parts; the os facrum, and fmall range of bones called the *coccyx*, form the pofterior part. This bony circumference includes a fpace which reprefents the figure of a bafon, from whence the name PELVIS is derived.

To have an accurate knowledge of the Pelvis, it is neceffary, firft to defcribe feparately the different parts of which it confifts, and then to confider it when thefe parts are united.

SECTION I.

OF THE PARTS OF THE PELVIS SEPARATELY.

THE *Offa Innominata* are two large expanded bones, which form the fides and fore-parts of the pelvis, and inferior lateral parts of the abdomen. In infancy and childhood, each of thefe bones is divided into three diftinct parts by intermediate cartilages; and though afterwards the bones become united, and every appearance of former feparation is nearly obliterated, the names

names by which they were distinguished in younger years are still retained.

1. The *Os Ilium*, or Haunch-bone, is the superior and largest portion of the innominatum. It extends from the semicircular ridge at the superior part, downwards and backwards as far as a transverse section of two-fifths of the *acetabulum* or cavity which receives the round head of the thigh-bone, and forwards to a little below the projection or ridge which forms the brim of the pelvis. Hence a small portion of the *ilium*, only, belongs to the pelvis, the expanded part being placed entirely without the brim. The different parts of the *ilium* are, the superior semicircular ridge or spine, giving rise to several inequalities or prominences, termed *spinal processes*; two broad surfaces, improperly named *dorsum* and *costa*; the small irregular surface by which it is joined to the sacrum posteriorly; the lower, thick, narrow part at the acetabulum; and the ridge or projection at the inferior anterior part.

2. The *Os Ischium*, or Seat-bone, call-

ed alſo Huckle-bone, is the inferior lateral portion of the os innominatum. Its figure is very irregular, and its extent may be marked by a line drawn nearly through the middle of the acetabulum.

The ſeveral parts of this bone are, the Body, Tuberoſity, Ramus, and Spinous Proceſs. The Body forms the loweſt and greateſt part of the acetabulum; the ſmall branch, or Ramus, makes up four-fifths of the great hole common to this bone and the Pubes, called *foramen ovale* or *thyroides*; and the inferior bump, flattened by preſſure, is the Tuberoſity, on which the body reſts in a ſitting poſture. The *tuber* is nearly cartilaginous at birth, and afterwards becomes an *epiphyſis*. The Spinous Proceſs is the ſharp projection behind the tuberoſity, to which the internal ſacro-ſciatic ligament is fixed.

3. The *Os Pubis*, or Share-bone, which makes the anterior middle part of the pelvis, is the ſmalleſt portion of the os innominatum.

Its ſeveral parts are, the Body, Angle, and Ramus. The Body is the ſuperior outer

outer part, by which it is joined to the os ilium: on this is a remarkable crista, which forms part of the brim of the pelvis. The Angle runs downwadrs and forwards; and has a rough unequal surface, for the firm adhesion of the thick ligamentous cartilage that connects the bones of the pubes, which is considerably thicker and of a softer texture in females than in males. This articulation is called *symphysis pubis*. The deficiency of bone below, or space between the two rami, is termed *arch of the pubes*.

The three portions of bone just now described, compose the os innominatum of each side; which are connected with the sacrum at the sacro-iliac synchondrosis, and anteriorly at the symphysis pubis, by cartilaginous agglutinations. These are strengthened in a very particular manner by strong ligaments at the posterior symphysis, and a double capsular aponeurosis anteriorly*, which seem to render them incapable of separation,

* See Dr Hunter's description of the Articulation of the Pubes, London Medical Observations and Inquiries, vol. ii. p. 333.

paration, or of any confiderable relaxation by the impulfe of labour. The bones and cartilages are, however, liable to be foftened by difeafe, and the ligaments relaxed, *viz.* from ricketty difpofition, rheumatifm, and from debility in confequence of fevers and other diforders. The bones may alfo be fractured, or the articulations forced, by mechanical injury, as falls, bruifes, &c. and fuppurations may enfue from internal caufes as well as accidents.

The pofterior part of the pelvis is made up of the *Os Sacrum*, or Rump-bone, and its extremity the *Coccyx*.

The *Os Sacrum*, called alfo *Os Bafilare* by the ancients, from its ufe in fupporting the trunk, is, in young fubjects, compofed of five or fix pieces, with intermediate cartilages. It has two furfaces, an external and internal: the former is rough and convex; the latter more fmooth and concave, marked with feveral tranfverfe lines, the remains of the intermediate cartilages which formerly connected the feveral pieces of bone. The flat fide is bent, firft downwards

wards and a little backwards, then considerably forwards. The *sacrum* is of a spongy cellular texture; and, in proportion to its size, the lightest bone of the body. Its figure is triangular, having the superior part for the base, with the apex downwards, gradually becoming narrower till it terminates in its appendage the *Coccyx*. The superior part, or base, anteriorly, has a sharp ridge, which makes the posterior part of the brim of the pelvis. Through the holes by which this bone is perforated, many nerves are transmitted. Those of the anterior superior part admit some of the largest of the whole system. The *sacrum* is articulated above to the last vertebra of the loins, in the same manner with the true vertebræ. Literally, it is joined to the ossa innominata by a deep irregular surface, where it forms an immoveable articulation, called the sacro-iliac synchondrosis; and below, it is connected with the coccyx by means of strong ligaments. It is securely guarded from external injuries, by the thick muscles that cover it behind, and by the strong li-

gamentous membranes which closely adhere to it.

The *Os Coccygis*, which is placed at the extremity of the *sacrum*, forms the lower posterior part of the pelvis, and inferior terminating point of the spine. Its figure resembles an inverted pyramid. Like the sacrum, it is bent downwards and forwards; having an external convex, and internal concave, surface. It consists, generally, of three pieces of bones, with intermediate cartilages which admit of considerable motion of the bones, in a direction most commodiously adapted for the enlargement of the inferior capacity of the pelvis.

In children, the *coccyx* is almost wholly cartilage; towards the decline of life, the interposed cartilages begin to ossify; and at length the separate pieces are united, and become one bone with the sacrum. The immobility of the *coccyx* is not, however, the reason why women advanced in life have commonly difficult and laborious births: various reasons concur, as the dryness and

rigidity of those parts that are softer and more pliable in younger years, &c.

The parts common to the Pelvis are, the *Acetabulum Ossis Femoris*, *Foramen Ovale*, great *Sacro-sciatic Notch*, and the *Brim*.

In the recent subject, this cavity is lined with the *periosteum*, with cartilages, tendons, membranes, muscles, and cellular substance. Internally it is covered chiefly with the *iliacus internus*, the *psoas*, and the *obturatores muscles*; externally, by the *glutæi*, tricipital and pyramidal: the abdominal muscles, with the *peritonæum* and common integuments, defend it before; and the bottom is shut by the *musculi coccygæi*, the sacro-sciatic ligaments, the inferior part of the rectum, its sphincter, and the integuments of the *perinæum*. These parts are chiefly supplied with nerves by the anterior and posterior crural, the obturator, and those of the sacrum; with blood-vessels, by the iliacs.

The pelvis is articulated with the spine at the superior posterior part, and with the ossa femorum below. Its principal uses are, to defend the parts contained in it from external

external injury, to ſupport the uterus during geſtation, and to give paſſage to the child at birth. It alſo ſupports the trunk and inferior parts of the body, forming the intermediate connection between them; and is the great centre of motion of the whole machine.

SECTION II.

OF THE SHAPE AND DIMENSIONS OF THE PELVIS.

THE cavity of the pelvis, or ſpace included within the bones, is of different ſhapes in different ſubjects; and has been ſuppoſed by different authors to approach more or leſs to an oval, elliptic, triangular, or circular form. Its circumference ought to be ſomewhat between an oval and a circle, and to meaſure nearly one-fourth of the height of the body.

The leſſer or true pelvis may be diſtinguiſhed by the *brim*, or ſuperior aperture; and the *bottom*, outlet, or inferior aperture. Conſidered in this point of view, the diameters of its brim and bottom, the width, depth,

depth, and form of its cavity, must be carefully attended to.

At the brim, the largest diameter of the pelvis is lateral, the next to it diagonal, and the smallest from pubes to sacrum. A well formed pelvis, in the skeleton, ought to measure nearly five inches and one-fourth laterally; four inches and one-half, or four and three-fourths, diagonally; and four inches and one-fourth from the top of the pubes to that of the sacrum. These proportions are reversed at its inferior aperture, where the pelvis is nearly an inch wider from the lower part of the arch of the pubes to the point of the coccyx, when that bone is on the stretch, than it is from side to side: for the distance between the tuberosities of the ischia is about four inches, or four and one-fourth only; and from the arch of the pubes to the extremity of the coccyx when stretched out, five inches, or five and one-fourth.

The pelvis at the sides is nearly twice as deep as at the fore-part, and almost three times deeper behind; viz. from the top of the

the ſacrum to the point of the coccyx, when extended, ſix inches, four at the ſides, and two only at the pubes. The upper and lateral parts of the pelvis, at the brim, are nearly perpendicular: but the anterior part is ſhallow; and the lateral openings in the recent ſubject are covered with membranous, muſcular, and ligamentous parts, which yield with the coccyx to the preſſure of the child's head, and form a concave nearly equal to that of the ſacrum. From this conſtruction, added to the curve and concavity of the ſacrum, and mobility of the coccyx, the bottom is conſiderably more capacious, and ſomewhat more circular than the brim.

A line from the ſymphyſis of the pubes, to the junction of the two laſt vertebræ of the ſacrum, is horizontal. And a line that biſects this horizontal line as well as the two diameters of the brim, makes the axis of the pelvis; and, if produced, will paſs through the umbilicus in an erect poſture; but, if in a reclining poſture, the line that paſſes through the umbilicus will be at right angles

to

to the diameter of the brim: and, in general, whatever is said of the angle which the axis makes with the diameter, is to be understood of the diameter of the brim, when the woman is erect; and of the horizontal line, when reclined. But, towards the end of pregnancy, a line to pass through the centre of the pelvis must fall half-way between the navel and scrobiculus cordis.

The axis of the different parts of the pelvis, formed by a diagonal, show the curved line of direction which the child's head describes in passing; and if these axes are supposed to be prolonged, they give the *déplacement* of the child's body.

The female pelvis differs from the male chiefly in the following particulars: The angle which the vertebræ lumborum make with the sacrum is more obtuse, the ilia are more expanded, the concavity of the sacrum and coccyx is larger, the connection of the coccyx with the sacrum is looser, the tuberosities of the ischia are placed at a greater distance, the symphysis of the pubes is thicker, the arch of the pubes and the lateral

lateral openings are more conſiderable, and the pelvis is wider in all its dimenſions.

SARASWATI MAHAL.

SECTION III.

DISTORTED PELVIS.

THE figure and proportions of the pelvis vary in ſome degree in different women; for the depth and form may be ſo affected by different degrees of diſtortion, as not only greatly to diminiſh its cavity, and occaſion leſs or more difficulty and danger in delivery, but in ſome inſtances to ſuch a degree as to render the birth of a living child altogether impoſſible. As the proportions above deſcribed conſtitute what is called a *ſtandard pelvis*, if it comes ſhort of theſe dimenſions, the pelvis becomes faulty or diſeaſed.

There are different kinds, as well as degrees, of narrow pelviſes. Sometimes the cavity of the pelvis is conſtitutionally ſmall, without any deformity. Sometimes there is a narrowneſs confined to the brim; ſometimes

times to the inferior aperture. Sometimes the distortion is general over all the pelvis: And sometimes the capacity is retrenched by an intrusion of the vertebræ lumborum over the sacrum; which may be so considerable, as to reduce the diameter of the brim to the space only of two or three inches, or even less: and this is the species of distortion most frequently observed in practice. The vertebræ of the sacrum may be also, from pressure while in a morbid state, so deformed and protruded, as to render that bone quite straight, and from the same cause convex instead of concave.

The causes of narrow pelvises are chiefly ricketty affections in infancy, sometimes external violence, such as fractures and dislocation of the bones, &c. The bones also become softened by disease in the adult state; and are then liable to narrowness and distortion, even in women who have formerly had easy labours *; but such cases are rare.

It

* See Vol. V. of the London Medical Observations and Inquiries, case of Cæs. Op. by Dr Cooper.

It is often impoſſible without examination to diſcover a narrow pelvis, eſpecially if the narrowneſs be confined to the brim. We may ſuſpect the diſtortion from the make and ſhape of the woman. The direction in which the ſpine is diſtorted frequently determines it. But the pelvis is not always affected by a morbid curvature of the ſpine: if that extend, however, to the lumber vertebræ, the pelvis very ſeldom eſcapes; though the moſt certain and infallible diagnoſtic is the diſtortion of the inferior extremities along with a twiſted ſpine. Women who are well proportioned in the lower extremities, have generally good pelviſes. When theſe are ill proportioned or crooked, eſpecially the thigh bones, along with other ſuſpicious appearances, the pelvis is very generally, though not univerſally, deformed.

We can generally, by the touch, diſcover any ſpecies of diſtortion in the pelvis, below the brim, from the tuberoſities of the iſchia approaching too near each other, from the convexity of the ſacrum, from the

the difference of shape in the arch of the pubes, &c.

When the deformity is at, or above, the brim, and the woman otherwise well shaped, it is often impossible to ascertain the narrowness till the labour be considerably advanced, and the child's head presenting in a conical form, with the bones protruding over one another, which are pretty certain marks of a narrow pelvis, or of a very large head.

But in order to understand the dimensions of the pelvis, it will be proper to consider the structure and form of the head of the fœtus; which, being compounded of different pieces, is admirably well adapted for accommodating itself to the shape and diameter of the pelvis.

The head presents, in every point of view in which it can be looked at, a figure more nearly approaching to an oval form than to any other. The cranium is composed of a greater number of bones than in the adult. The pieces forming its base are strongly joined together; but the frontal, the tempo-

ral, the parietal, and the occipital bones, inftead of being indented into each other, as they afterwards are by what are termed futures, are loofely connected by means of membranes. This mechanifm allows the cranium to be diminifhed by preffure, the bones being thereby made to approach or flide over each other.

Where the fagittal and coronal futures * crofs, there is a greater deficiency of offification than in the courfe of thefe futures, as if the angles of the adjoining bones were rounded off. This membranous fpace is of a quadrangular form, and is called the anterior fontanelle.

There is nearly a fimilar ftructure where the fagittal and lambdoidal futures meet, but the membranous fpace is lefs, and is of a triangular fhape. It is from this point the hairs diverge. It is termed the vertex, or the pofterior fontanelle.

The

* The term *future* is employed, becaufe the membranes connecting the bones follow the fame courfe that the futures afterwards do.

The face, like the cranium, is of an oval form, but its surface is unequal, and all the bones which compose it, except the lower jaw, are immoveable.

The head is broader behind than before, and the face is broader above than below.

The head, like the pelvis, has different diameters. The following are deemed the ordinary dimensions at birth:

From the os frontis to the occiput, between 4 and $4\frac{1}{2}$ inches.

Laterally, from temple to temple, 3 inches.

Laterally, at the posterior part, $3\frac{1}{2}$ inches.

From the top of the head to the nape of the neck, $3\frac{6}{10}$ inches.

The length of the face from the chin to the forehead, is about $5\frac{1}{4}$ inches.

The length of the whole head from chin to vertex, about $5\frac{1}{2}$ inches; and when the vertex is stretched out in laborious births, about 6 or 7 inches.

The total circumference of the head, between 12 and 14 inches, or somewhat more.

The breadth of the body at the ſhoulders, is about 5 or 6 inches.

The breadth of the body at the breech, about 5 inches.

The circumference of the body at ſhoulders and breech, from 15 to 18 inches.

The length of the whole body, 20 or 21 inches.

Conſidering the ſtructure, form, and diameters of the pelvis and child's head, the application, in explaining the mechanical deſcent of the head through the pelvis, is ſufficiently obvious; but as the bulk and diameter of the one is not always mathematically adapted to the capacity of the other, difficulties muſt ſometimes ariſe. Hence the advantage of this peculiar ſtructure and mechaniſm of the *cranium*; for if the child's head were one firm oſſified body, whoſe dimenſions at any time exceeded thoſe of the cylindrical cavity through which it ſhould paſs, however mechanically, and with whatever force it deſcended, the delivery could not be accompliſhed without extraordinary aſſiſtance; and

and the consequences would always prove fatal either to mother or child.

SECTION IV.

GENERAL OBSERVATIONS.

1. FROM the structure of the bony zone, called the pelvis, and from the articulation of its several pieces, it is very obvious that, during labour, the bones do not separate so as to enlarge the capacity of the cavity which they form, except in consequence of disease, or from violence.

2. The shape and construction of the child's head, which admits of considerable diminution by pressure, sufficiently compensate for the want of motion of the bones of the pelvis: for the head is of an oval or spheroidal figure, and is capable, as already stated, of being diminished by the force of labour. But as in different subjects it varies in shape, structure, and solidity; it cannot, in passing through the capacity of the pelvis, be always made to suffer that diminution of its bulk, from pressure, which

may be neceſſary. If, therefore, the volume of the child's head be diſproportioned to the diameters of the brim or outlet of the pelvis, or if the long axis of the one be applied in an improper direction to the other, obſtacles to its paſſage muſt ariſe.

3. It is therefore of the utmoſt conſequence to know the figure, ſtructure, mode of poſition of the child's head, and the ſhape and proportions of the different openings of the pelvis; and to remember, that theſe proportions are reverſed in the ovals of the ſuperior and inferior apertures; that the depth of the poſterior part is to the anterior as three to one, and to the ſides as three to two.

4. Theſe proportions are, however, liable to conſiderable variation in different ſubjects; and the whole pelvis may become ſo affected, as to have its brim, depth, and inferior aperture, conſiderably retrenched and diminiſhed, from original mal-conformation, from bruiſes, and from diſeaſe.

5. Thoſe women who appear, from ſome diſtortions, to have been ſubject to rickets,

rickets, have probably a contracted pelvis; and the probability is greatly strengthened if the lower extremities have suffered.

6. Deformities of the spine from other causes do not generally influence the pelvis; so that every woman apparently crooked, has not always a laborious and difficult birth.

7. All the different distortions of the pelvis may be accounted for from the pressure of the body on the bones previously softened by disease, *viz.* by the pressure of the upper parts of the spine upon the sacrum, and by that of the whole body on the ischia and pubes.

CHAP. II.

SEXUAL ORGANS OF WOMEN.

THE organs of generation are divided into *external* and *internal.*

The external parts are, the *labia externa*, the *clitoris*, the *nymphæ*, and the *os externum.* A membranous expanſion, called *hymen*, and certain ſmall fleſhy excreſcences, named *carunculæ myrtiformes*, may be ſtyled the barriers between the external and internal parts.

The internal parts are, the *vagina*; the *uterus*, with the ligaments, ovaria, and Fallopian tubes.

The contiguous parts are, externally, the *mons veneris*, the *meatus urinarius*, the *anus*, *ſphincter ani*, and *perinæum*; internally, the *bladder*, *urethra*, and *rectum.*

The *mons veneris* is nothing more than the ſkin raiſed by a quantity of adipoſe ſubſtance collected under it, that cuſhions it up externally in the form of a tumor. From the

the lower part of this the *labia* begin, and run downwards, till they are bounded by the perinæum, forming by their junction their inferior commiſſure. In their ſtructure they are cellular, but more ligamentous than the mons veneris. Their inner ſurface is villous and glandular, ſeparating a ſebaceous kind of liquor analogous to that about the corona glandis of the male.

Upon ſeparating the labia, a red projecting body appears, called *clitoris*, compoſed of two crura, which ariſe from the lower part of the oſſa pubis, approach one another, and form the body of the clitoris, whoſe extremity is termed *glans*, covered with a looſe doubling of the ſkin, called *præputium.*

The *nymphæ* are placed immediately within the external labia, and are continued downwards and forwards on the interior ſymphyſis pubis nearly as far as the orifice of the urethra. They are productions or folds of the internal ſurface of the labia, and are very vaſcular. When the labia are

open, they divaricate; and when ſhut, come into contact.

Downwards from between the nymphæ runs a ſmooth *foſſa*; at the bottom of this is a prominence, in the centre of which is the *orifice* of the *urethra*. Its uſual ſituation is nearly oppoſite to the inferior extremities of the nymphæ.

Below the urethra is the aperture into the vagina, called *os externum*; round its orifice a membrane, or the remains of a membrane, called *hymen*, may be obſerved; and within that, there are two or three ſmall bodies like excreſcences, the *carunculæ myrtiformes*, which were formerly regarded by anatomiſts as the conſequences of the hymen being ruptured.

The *ſphincter vaginæ* is a flat muſcle, coming down from the clitoris, and is loſt on the perinæum. In very muſcular ſubjects, its fibres run quite round the vagina. There is a plexus of nerves and blood veſſels, called *plexus retiformis*, that goes up on the inſide of this muſcle, and communicates with the clitoris.

The

The *glands* of theſe parts are ſituated in ſuch a manner, that, upon preſſure, a conſiderable quantity of viſcous humour is thrown out.

Theſe parts, in proportion to their ſenſibility, are exceedingly irritable, and ſubject to conſiderable inflammation and tumefaction even in the eaſieſt labours. Hence the impropriety and hazard of *officious touching* in the beginning of labours, while the preſenting part of the child is at a diſtance, while the paſſage is narrow and tight, and not yet ſufficiently relaxed by the lubricating mucus, which is afterwards ſo plentifully thrown out for the purpoſe.

The orifices of theſe parts, obſerving the direction of the ſacrum and perinæum, do not run ſtraight out, but downwards and forwards; by which the vagina, uterus, and rectum, are in leſs danger of protruſion. In the introduction of the catheter, the point ſhould therefore be directed, firſt a little downwards and backwards, then gently raiſed forwards and upwards.

The *vagina*, or paſſage to the womb, lies

immediately under the bladder, and upon the rectum. In virgins it is full of rugæ; but in married women, and especially in those who have born children, it is ſmooth, or nearly ſo. It is compoſed of a plexus of muſcular fibres, and a rugous membrane; and its ſtructure is alſo nervous and glandular.

The junction between the vagina and uterus is ſuch as to form an angle between them, for the vagina is attached to the uterus higher behind than before. The vagina is more firmly connected with the bladder than with the rectum.

The *uterus* lies in the middle of the pelvis, looſely, between the rectum and bladder; but its poſition is liable to variation at different periods of life, and is affected by various other circumſtances. It is triangular, of the figure of a pear or ſmall powder-flaſk, and generally about three inches long, ſomewhat convex on its poſterior ſurface, and flattened on its anterior one.

It is divided into three parts, viz. the fundus, the body, and the cervix. The latter terminates by the *os uteri*, or *os tincæ*, which

which projects into the vagina. On being cut open, it appears of a compact solid substance, thicker at its upper part, and thinner at the neck. Its cavity is very inconſiderable in the unimpregnated ſtate, for the ſides of the plane almoſt come in contact. Though its ſtructure is muſcular, its muſcular fibres can with difficulty be traced: They appear to be moſtly circular; but are very difficult to unravel. Its veſſels proceed from the ſpermatics and hypogaſtrics, which furniſh blood to all the parts. The arteries are very ſmall in proportion to the veins both external and internal. Its nerves come from very ſmall filaments; and are chiefly furniſhed from the intercoſtals, thoſe of the ſacrum, and the ſympathetici maximi. It is alſo ſupplied with lymphatic veſſels.

The uterine *ligaments* are of two kinds; the *ligamenta lata*, and the *ligamenta rotunda*. The former are no more than part of the peritonæum; which, after giving a coat to the uterus, goes out laterally to form theſe ligaments: they are therefore only doub-

doublings of that membrane, like the mesentery to the inteſtine, ſerving to connect the uterus to the ſides of the pelvis. They have two folds in their upper part: The anterior contains the Fallopian tubes; the poſterior, the ovaria.

Each of the ligamenta rotunda is a little plexus of muſcular fibres, nerves, and veſſels, enveloped in a common membrane, in the form of a cord or ligament, coming down before the Fallopian tubes, and going out at the rings of the abdominal muſcles to be loſt in the groin.

In the ſuperior plica of the broad ligaments, the *Tubæ Fallopianæ* are contained. They have one extremity fixed to the fundus uteri, where the perforation is ſo ſmall as hardly to admit of a hog's briſtle; but the diameter gradually enlarges, becoming wider and wider, like a trumpet, till it terminates in a ſmall opening ſurrounded by a fringed ſubſtance, forming the other extremity, and floating looſely in the pelvis, called *Morſus Diaboli.* This cavity is not ſtraight, but convoluted: When inflated, it ſeems to be

ſtrung upon the broad ligament, as the inteſtines are upon the meſentery.

The *ovaria* are two flattened oblong bodies, nearly of the ſhape of nutmegs, ſituated at the ſides of the uterus, on the poſterior part of the ligamenta lata. Their ſhape and ſize are different in different women: Their outer ſurface is divided by a number of chops; but is ſmoother and more uniform in virgins than in married women who have had children. There is little to be obſerved in their texture, except a number of veſſels, and ſomething like veſiculæ or water bags; theſe were ſuppoſed to be the ova, remarkable in the ovaria of ſome animals. When a woman dies with child, one particular cavity is obſerved, which was thought to be the calyx from whence the ovum had dropped; but this is too obſcure a ſubject to be noticed in this place.

The *anus* is the orifice of the rectum, which is the centre of the axis of the pelvis. It is contracted into rugæ by a plexus of muſcular fibres, called *ſphincter ani*, which anſwers nearly the ſame purpoſe as it does in the

the male, and is loſt in the perinæum, inſtead of the bulb of the urethra.

The *rectum* runs in a line, not quite ſtraight behind the vagina and uterus, in the hollow part of the ſacrum, through the cavity of the pelvis, and is ſupported upon the coccyx and muſcles below, as in the male.

The *urethra* is about an inch and a half long; has no regular proſtate, like the male; but is ſupplied with a number of ſmall glandular bodies, placed along the whole interior ſurface; and between the orificium vaginæ, and the meatus urinarius, a pretty large glandular body is placed, which has been termed the *female proſtate*.

The *bladder* is ſituated over the vagina and uterus immediately behind the pubes; and is ſuppoſed to be larger and more capacious than in the other ſex.

As the vagina and urethra lie between the rectum and bladder, any diſorders in the one are readily communicated to the other.

The *perinæum* is the ſeptum or ſpace between the orificium vaginæ and the anus. It

It is chiefly made up of the ſphincter ani and the muſcular ſubſtance ſurrounding the vagina, the common integuments, and cellular ſubſtance. In its natural ſtate it does not much exceed an inch in breadth, but is conſiderably ſtretched in time of labour.

CHAP. III.

OF THE MENSES.

AT the age of puberty, when a conſiderable change in the conſtitution of women has taken place, a diſcharge of a bloody-like fluid, from the ſexual organs, begins to occur periodically. This evacuation has been termed Menſes, Catamenia, &c. Its ſource certainly is the uterus, from which it does not flow in a ſtream, but gently drills for three or four days, in ſome women for a ſhorter time, and in others for a longer period. The quantity commonly evacuated is between four and ſix ounces.

The menſes, in temperate climates, continue in healthy women to occur at a certain term, generally every three or four weeks), till between the 40th and 50th year, except during the time of pregnancy, when the diſcharge is always ſuppreſſed. During nurſing, too, the catamenia ſeldom appear.

The

The quantity, duration, and periods of the diſcharge, vary in different women, and ſeem to be influenced by peculiarity of conſtitution, by the manner of living, and by climate.

The cauſe of this periodical evacuation, peculiar to the female of the human ſpecies, has been a curious and perplexing ſubject of inquiry in all ages.

In the infancy of medicine, when fancy more than judgment influenced the theory, it is not ſurpriſing that the moſt chimerical reaſons ſhould have been given, to account for an appearance ſo ſtriking and ſo important. Thus it was attributed to the influence of the moon from its periodical appearance; to a ferment in the fluids, when fermentation was introduced to account for every phenomenon. Men, in other views reſpectable, have exerted all their ingenuity in defence of theſe theories; but they are now exploded, and the catamenia are commonly ſuppoſed to ariſe from an univerſal plethora, or a topical congeſtion: theſe opinons, we ſhall proceed to examine.

From a ſuperficial view of the ſeveral phe-

phenomena, it would appear probable that the menſes are occaſioned by plethora. But this idea of itſelf is vague, and will not account for all the appearances. By plethora we underſtand a larger quantity of blood than is adapted to the capacity of the veſſels, either of the whole ſyſtem, or of any particular part. This may depend on the increaſe of the abſolute quantity of the fluids; or on a conſtriction of the veſſels. It is the former of theſe that ſeems to be meant by the advocates for a general plethora; and the chief arguments appear to be derived from the general debility and inactivity, and the ſwelling of the breaſts. The two former, though often depending on plethora, may be produced by many other cauſes; ſo that no argument can be drawn from them. The laſt by no means ſhows an increaſed quantity of the fluids in general; it ſeems much connected with the ſtate of the uterus, and takes place in ſtates of the ſyſtem very diſadvantageous to a general fulneſs. We may, with ſome confidence, therefore, reject an opinion that has many direct argu-

ments againſt it. For many of the ſymptoms are not to be explained upon the principle of general plethora.

That the Menſes depend upon a Topical Congeſtion is the opinion of the late Dr Cullen.

The following account of Dr Cullen's Theory was inſerted in the former editions of this work, by permiſſion of the Doctor himſelf.

He obſerves, "That the growth of the body depends upon the increaſe of the quantity of fluids giving occaſion to the diſtention of the veſſels, and thus producing the gradual evolution and full growth of the whole ſyſtem. This evolution does not happen equally in every part of the body at the ſame time, but ſucceſſively according to the different ſize and denſity of the ſeveral veſſels determined by the original ſtamina. Thus the upper parts of the body firſt acquire their natural ſize, and then the lower extremities. By the ſame conſtitution it ſeems to be determined that the uterus of the human ſpecies ſhould not be conſiderably

ſiderably evolved, till the reſt of the body is nearly arrived at its full bulk But as the veſſels of every part, by their diſtention and growth, increaſe in denſity, and give thereby more reſiſtance to their further growth, at the ſame time, by the ſame reſiſtance, they determine the blood in greater quantity into the parts not yet equally evolved. By this means the whole of the ſyſtem muſt be ſucceſſively evolved, till every part is brought to that degree of diſtention which is neceſſary to bring them to a balance in reſpect of denſity and reſiſtance with one another. Upon theſe principles, there will be a period in the growth of the body, when the veſſels of the uterus will be diſtended till they are in balance with the reſt of the ſyſtem; and their conſtitution may be ſuch, that their diſtention may proceed ſo far as to open their extremities, terminating in the cavity of the uterus, ſo as to pour out blood there; or it may happen that a certain degree of diſtention may be ſufficient to irritate and increaſe the action of the veſſels, and thereby to produce an hæmorrhagic effort,

ſort, which may force the extremities of the veſſels with the ſame effect of pouring out blood.

"In either way, he accounts for the firſt appearance of a flow of blood from the uterus in women. In order to this, he does not ſuppoſe any more of a general plethora in the ſyſtem, than what is conſtantly neceſſary to the ſucceſſive evolution of the ſeveral parts of it; and he proceeds upon the ſuppoſition, that the evolution of each particular part muſt eſpecially depend upon the plethora, or increaſed congeſtion, in its proper veſſels. Thus he ſuppoſes it to happen with reſpect to the uterus; but as its plethoric ſtate, he obſerves, produces an evacuation of blood from its veſſels, this evacuation muſt empty theſe veſſels more eſpecially, and put them again into a relaxed ſtate with reſpect to the reſt of the ſyſtem. This emptied and relaxed ſtate of the veſſels of the uterus will give occaſion to a new congeſtion of blood in them, till they are again brought to that degree of diſtention that may either force their extremities,

or produce a new hæmorrhagic effort, that may have the same effect. Thus an evacuation of blood from the uterus, being once begun by the causes before mentioned, it must, by the operation of the same causes, return after a certain period, and must continue to do so till particular circumstances occasion a considerable change in the constitution of the uterus. What determines the periods of these returns to be nearly in the space of a month, he cannot exactly explain; but supposes it to depend upon a certain balance between the vessels of the uterus and those of the other parts of the body. This must determine the first periods; and when it does so, it can be understood, that a considerable increase or diminution of the quantity of blood in the whole system will have but little effect in increasing or diminishing the quantity distributed to the uterus. It may also be further observed, that when the evacuation has been repeated for some time at regular periods, it may be supposed that the *power of habit*, which so readily takes place in the

animal

animal ſyſtem, may have a great ſhare in determining the periodical motions of the uterus to be with great regularity, though in the mean time conſiderable changes may have happened with reſpect to the whole ſyſtem."

This theory, however, is ſtill liable to ſo many objections that another opinion has been lately introduced to notice, viz. that the menſtrual diſcharge is a ſecretion from the uterus.

The chief arguments in favour of this doctrine are founded on the ſtructure of the uterus, and the appearance and qualities of the evacuated fluid, which are totally different from thoſe of blood.

The purpoſes which the catamenia ſerve have not yet been ſatisfactorily explained.

CHAP.

CHAP. IV.

OF THE CHANGES PRODUCED ON THE UTERUS BY IMPREGNATION.

THE œconomy of the gravid uterus affords ſome of the moſt intereſting views of the operations of nature, which can offer themſelves to a phyſiologiſt, although the ſubject be ſtill much involved in obſcurity.

Reſpecting that great operation, by which the continuation of the ſpecies of animals is accompliſhed, little ſatisfactory can be ſaid; and, therefore, in this work, a very ſhort ſketch only of the conjectures that have been held out as explanations of this myſterious proceſs is required.

The labours of many eminent anatomiſts have elucidated the contents of the impregnated womb, the next ſubject in order, and have alſo fully illuſtrated the changes produced by impregnation on the uterus itſelf.

itſelf. But many circumſtances relating to the functions of the ſeveral parts of the ovum yet remain to be explained; a taſk which cannot be undertaken in a work ſuch as this.

SECTION I.

OF CONCEPTION.

IT is obvious that the child muſt be formed out of materials furniſhed either by one of the parents or by both: hence three theories of generation have been propoſed, viz.

I. That the rudiments of the fœtus are derived from the female parent.

II. That they originate from the male; and,

III. That they reſult from ſomething furniſhed by both.

That each of theſe ſyſtems has had its ſeveral ſupporters and antagoniſts, cannot be ſurpriſing, when we conſider the obſcurity of the ſubject, as well as the extent of learning

learning and brilliancy of imagination which have diſtinguiſhed the ſeveral combatants.

We ſhall not conſider minutely theſe ſeveral ſyſtems in this place. To elude difficulties, which they cannot conquer, modern philoſophers have endeavoured to transfer the queſtion; and by ſuppoſing the animal already to exiſt complete in its ſeveral parts, but of an aſtoniſhing minuteneſs, have rather laboured to ſhow by what means it is animated, and by what aſſiſtance evolved.

This view, when extended to ſucceſſive generations, at firſt ſtartles the modeſt inquirer by its apparent abſurdity, and perplexes the moderate calculator. It, however, is not more contradictory than many phyſiological poſitions which have never been controverted; and it is ſome addition to its credit, that it is ſupported by Bonnet and Haller. On this foundation, which is ſupported alſo by the authority of Harvey, the principle of animation is alledged to be the ſemen maſculinum; and Bonnet has adduced many plauſible arguments

guments to prove, that, for ſome time, the nouriſhment of the fœtus is chiefly derived from the ſame ſource; which affords, at leaſt, a ſimple view of the ſubject.—The embryo, when firſt the object of our ſenſes, appears almoſt entirely vegetative: it adheres to the fundus uteri, and extracts the fluids of its mother without any exertions that are peculiarly its own. But it ſoon ſhows ſome marks of animation. Its heart is obſerved to beat: it ſeems to prepare fluids for its own purpoſes, and to ſeparate thoſe which are no longer beneficial: in ſhort, it acquires a diſtinct ſyſtem; from part of which it is ſupplied with the original portion of its fluids; and which it, in its turn, ſupplies with the ſame fluids more highly elaborated, and more carefully prepared.

The ſecond theory is now almoſt univerſally abandoned, although perhaps it is not more falſe than the former.

The laſt opinion has, within theſe few years, become very prevalent; and, upon the whole, the arguments in its favour ſeem more numerous and plauſible than

thoſe

thoſe offered in ſupport of the other theories.

SECTION II.

STRUCTURE OF THE OVUM IN EARLY GESTATION.

THE ovum, ſoon after its introduction, adheres to ſome part of the internal ſurface of the uterus: at firſt it appears like a ſmall veſicle, ſlightly attached, and gradually increaſes in bulk, till it apparently comes in contact with the whole cavity of the fundus.

The embryo, or unformed fœtus, with placenta, umbilical cord, membranes, and waters, in early geſtation, conſtitute the ovum: which then appears like a thickened fleſhy maſs, the more external lamellæ and other parts, which are afterwards ſeparate and diſtinct, being blended and jumbled in ſuch a manner that they cannot be readily diſtinguiſhed or traced.

In the progreſs of geſtation, the external lamella, or membranous ſurface, ſtretching, grows thinner; the cavity which contains

contains the rudiments of the fœtus becomes more apparent; and then a thick vaſcular part on the outſide of the chorion, called *placenta*, can be readily diſtinguiſhed from the membranous portion of the ovum.

The membranous part of the ovum (or bag which contains in its cavity the embryo, funis, and watery fluid in which the embryo floats) is originally compoſed of two coats; the internal lamella, or that next the fœtus, is called *amnios*; and the external, the *true chorion*. But the lamella, which conſtitutes the external covering of the ovum, is ſuppoſed to be derived immediately from the uterus. This production is at firſt looſely ſpread over the ovum, and afterwards comes in contact with the true chorion. This lamella, which forms the external vaſcular ſurface of the ovum, is much thicker than the true chorion and amnios; and the proportion which it bears to the other parts is ſo great, that, in early conception, the maſs of the ovum is chiefly compoſed of it. Dr Ruyſch

called

called this exterior coat the *tunica filamentosa*; more modern authors, the *falſe* or *ſpongy chorion*; and by Dr Hunter the *membrana decidua* or *caduca*. He alleged that this conſiſts of two diſtinct layers; one of which lines the uterus, the other covers the ovum; and this he called *decidua reflexa*, becauſe he ſuppoſed it to be reflected from the uterus upon the ovum, forming the connecting medium between them. The portion which covers the ovum, he deſcribed as being nearly a complete membrane, like the true chorion and amnios: but that which immediately lines the uterus is, he ſaid, imperfect or deficient, being perforated with three foramina, *viz.* two ſmall ones, correſponding with the inſertion of the tubes at the fundus uteri; and a larger ragged perforation oppoſite to the orificium uteri *.

Thus, according to Dr Hunter, the embryo, in the early time of geſtation, is incloſed in four membranes, *viz.* the ſpongy

* See Dr Hunter's Tables, Pl. xxxiv. fig. 5. & 6.

ſpongy chorion, called *decidua*, the *decidua reflexa* (eventually blended together); the true chorion and the amnios.

The true chorion and the amnios are decidedly organized membranes, being compoſed of regular layers of fibres. The decidua, and decidua reflexa, differ in appearance, and ſeem to reſemble thoſe inorganic ſubſtances which connect inflamed viſcera. If they be original membranes, and only viſible from their evolution and increaſe, it is not eaſy to conceive how the ovum gets behind them, ſince the Fallopian tubes are not covered by them. We are therefore inclined to adopt an opinion ſuggeſted firſt by Mr Falconer and Mr Cruikſhanks, and rendered probable by the experiments of Signor Scarpa, "That they are entirely compoſed of an inſpiſſated coagulable lymph."

Between the amnion and chorion a quantity of gelatinous fluid is contained in the early months; and a ſmall bag, or white ſpeck, is then obſerved on the amnion, near the inſertion of the umbilical

cord. It is filled with a white liquor, of a thick milky confiftence; and is called *vefícula umbilicalis*, *vefícula alba* or *lactea:* it communicates with the umbilical cord by a fmall funis, which is made up of an artery and vein. This vefícle, and duct or tube leading from it, are only confpicuous in the early months; and afterwards become tranfparent, and of confequence invifible*. Their ufe is not yet underftood.

Though the bag, or external parts of the conception, at firft form a large proportion of the ovum in comparifon of the embryo or fœtus, in advanced geftation the proportions are reverfed. An ovum between the eighth and ninth week after conception, is nearly about the fize of a hen's egg, while the embryo fcarcely exceeds the weight of a fcruple; at three months, the former increafes beyond the magnitude of a goofe's egg, the weight about eight ounces; but the fœtus does not then amount to three ounces: at eight months, the fœtus

* See Dr Hunter's elegant plates of the Gravid Uterus, Pl. xxxiv. fig. 2.

tus generally weighs ſomewhat more than five pounds, the ſecundines little more than one pound: at birth, the fœtus weighs from ſix or ſeven to nine pounds, which it rarely exceeds*; but the placenta ſeldom increaſes much in bulk from between the ſeventh and eighth month.

Having deſcribed the ovum in early geſtation, we ſhall next take a view of the germ; trace the progreſs of the embryo and fœtus; then reſume the ſubject of the ovum, to explain the ſtructure of the membranes, placenta, &c. in advanced geſtation, and point out the moſt remarkable changes which the uterus ſuffers during impregnation.

SECTION III.

EVOLUTION OF THE FOETUS.

THERE can be little doubt that all the parts of an animal exiſt completely in the

 germ,

* Natura ſibi ſemper conſtans manet, conſuetum maturorum fœtuum pondus eſſe inter 6 et 7 libras civiles medium; rarius 9 libras excedere.—Henr. Aug. Wriſbergii Obſ. Anatomicæ, &c. Goettingœ, 1779.

germ, though their extreme minuteneſs and fluidity for ſome time conceal them from our ſight. In a ſtate of progreſſion, ſome of them are much earlier conſpicuous than others.

The embryo, in its original ſtate, is probably entirely fibrous and nervous; and theſe primary parts ſeem to contain, in a ſmall ſcale, all the others which are afterwards to be progreſſively evolved. Of the former the heart and liver, of the latter the brain and ſpinal medulla, firſt become conſpicuous; for the ſpine of the embryo is formed ſome time before any veſtige of extremities begin to ſprout. The encephalon, or head, and its appendages, firſt appear; then the thoracic viſcera; next the abdominal: at length the extremities gradually ſhoot out; the ſuperior firſt, then the inferior; and, by ſlow and inſenſible gradation, the beautiful and admirable ſtructure of the whole complicated ſyſtem is evolved.

As ſoon as the embryo has acquired ſufficient conſiſtence to be the ſubject of our obſervation, a little moving point, which

is

is the heart, diſcovers itſelf. Nothing, however, but general circumſtances relating to the particular order and progreſs of the ſucceſſive germination or evolution of the viſcera, extremities, vaſcular ſyſtem, and other parts of the human fœtus, can be aſcertained, as it is beyond the power of anatomical inveſtigation.

It is alſo exceedingly difficult to determine the age or proportional growth of the fœtus. The judgment we form muſt be liable to conſiderable variation: 1ſt, From the uncertainty of fixing the period of pregnancy; 2dly, From the difference of a fœtus of the ſame age in different women, and in the ſame woman in different pregnancies; and, laſtly, Becauſe the fœtus is often retained *in utero* for ſome time after the extinction of its life.

The progreſs of the fœtus appears to be ſlower in the early than latter months: but the proportional increaſe is attended with difficulty in the calculation; for this, among other reaſons, that we have not an opportunity of knowing the magnitude

or weight of the fame fœtus in different months. It will alfo, probably, be materially influenced by the health, conftitution, and mode of life, of the parent.

A fœtus of four weeks, is near the fize of a common fly; it is foft, mucilaginous, feems to hang by its belly, and its bowels are only covered by a tranfparent membrane. At fix weeks, the confiftence is ftill gelatinous, the fize about that of a fmall bee, the head larger than the reft of the body, and the extremities then begin to fhoot out. At twelve weeks, it is near 3 inches long, and its formation pretty diftinct *. At four months, the fœtus meafures above 5 inches; at five months, between 6 and 7 inches; at fix months, the fœtus is perfect in all its external parts, and commonly in length about 8, or between 8 and 9 inches; at feven months, it is between 11 and 12 inches; at eight months, about 14 or 15 inches; and at full time, from

* See Dr Hunter's elegant Plates of the Gravid Uterus, the Works of Dr Harvey, De Graaf, Malpighi, Haller, &c.

from 18 to 22 or 23 inches. But these calculations, for the above reasons, must be very uncertain.

SECTION IV.

CONTENTS OF THE GRAVID UTERUS IN ADVANCED GESTATION.

These consist of the Fœtus, Umbilical Cord, Placenta, Membranes, and Contained Fluid. We have already traced the progress of the fœtus; and shall proceed to describe the other parts of the ovum in advanced gestation, as just enumerated.

Umbilical Cord.

The fœtus is connected to the placenta by the umbilical cord, or navel-string; which may be defined, " a long vascular rope, composed of two arteries and a vein, covered with coats derived from the membranes, and distended with a quantity of viscid gelatinous substance, to which the bulk of the cord is chiefly owing.

The cord always ariſes from the centre of the child's belly, but its point of inſertion in the cake is variable. Its ſhape is ſeldom quite cylindrical; and its veſſels are ſometimes twiſted or coiled, ſometimes formed into longitudinal ſulci. Its diameter is commonly about the thickneſs of an ordinary finger, and its length ſufficient to admit the birth of the child with ſafety, though the placenta ſhould adhere at the fundus uteri. In length and thickneſs, however, it is liable to conſiderable variation. The extremity next the fœtus is generally ſtrongeſt; it is ſomewhat weaker and more ſlender next the placenta, according to its place of inſertion; which, though commonly not far from the centre, is ſometimes towards the very edge. This ſuggeſts an important advice to practitioners, to be cautious of pulling the rope to extract the placenta when they feel the ſenſation of its ſplitting as it were into two diviſions, which will proportionally weaken its reſiſtance, and render it liable to be ruptured with a very ſlight

degree

degree of force in pulling.—The use of the cord is to connect the fœtus to the cake.

Placenta.

The Placenta, Cake, or After-birth, is a thick, soft, vascular mass, connected to the fœtus by the funis umbilicalis, and to the uterus by means of the spongy chorion, as already explained. It differs in shape and size; it is thickest at the centre, and gradually becomes thinner towards the edges, where the membranes go off all round, making a complete bag or evolucrum to surround the waters, funis, and child.

Its substance is chiefly vascular, and probably in some degree glandular. The ramifications of the vessels are very minute, which are unravelled by maceration, and, when injected, exhibit a most beautiful appearance resembling the bushy tops of a tree. It has an external convex, and an internal concave, surface. The former is divided into a number of small lobes and fissures, by means of which its adhesion to the uterus is more firmly secured. This lobulated appearance

appearance is moſt remarkable when the cake has been raſhly ſeparated from the uterus; for the membrana decidua, or connecting membrane between it and the uterus, is then torn.

The internal concave ſurface of the placenta is looſely covered with the amnion, and by the chorion more immediately and intimately. From this internal ſurface ariſe innumerable ramifications of veins and arteries, which inoſculate and anaſtomoſe with one another; and at laſt the different branches unite, and form the *funis umbilicalis*.

The after-birth is found to adhere occaſionally to every part of the internal ſurface of the uterus; and ſometimes, though more rarely, part of the cake extends over the *orificium uteri*; from whence, when the orifice begins to dilate, the moſt frightful and dangerous floodings ariſe. But the moſt common place of attachment of the cake is from the ſuperior part of the cervix to the fundus.

Twins,

Twins, triplets, &c. have their placenta ſometimes ſeparate and ſometimes adhering together. When the placentæ adhere, they have generally the chorion in common; but each fœtus has its diſtinct amnion. They are commonly joined together, either by an intervening membrane, or by the ſurfaces being contiguous to one another; and ſometimes the veſſels of the one cake anaſtomoſe with thoſe of the other*.

The human placenta, according to Dr Hunter, is ſimilar in ſtructure to that of quadrupeds; and ſeems to be compoſed of two diſtinct ſyſtems of parts, a ſpongy or cellular, and a vaſcular ſubſtance. It has of conſequence two diſtinct ſets of veſſels. The ſpongy or cellular part, formed by the decidua, is derived from the mother; and, if filled with injection, will increaſe the placenta to nearly twice its ordinary thickneſs; the more internal vaſcular part belongs entirely to the fœtus, and can only be injected from the cord, as the ſpongy part by filling the veſſels of the uterus. This will

* Two preparations of this kind are in my poſſeſſion.

will be better underſtood when the mode of circulation between the parent and child is explained.

Membranes.

These conſiſt, externally, of two layers of the ſpongy chorion, called *decidua;* internally of the true chorion and the amnion. They form a pretty ſtrong bag, commencing at the edge of the cake, going round the whole circumference, and lining the internal ſurface of the womb. When ſeparated from the uterus, this membranous bag is ſlender and yielding, and its texture readily deſtroyed by the impulſe of the contained fluid, the preſſure of the child, or of the finger in touching; but in its natural ſtate, while it lines the womb, and is in cloſe contact with its ſurface, the membranous bag is ſo tough and ſtrong as to give a conſiderable degree of reſiſtance. It is alſo ſtrengthened in proportion to the different layers of which it is compoſed, whoſe ſtructure we ſhall proceed to explain more particularly.

1. The

1. The *Membrana Decidua*, or that lamella of the spongy false chorion which is in immediate contact with the uterus, is originally very thick and spongy, and exceedingly vascular, particularly where it approaches the placenta. At first it is loosely, as it were, spread over the ovum; and the intervening space is filled with a quantity of gelatinous substance. It gradually becomes more and more attenuated, and approaches nearer to the interior lamella of the decidua, called *decidua reflexa;* and about the fifth month the two layers come in contact, and adhere so as to become apparently one membrane*.

2. *Decidua Reflexa.* In its structure and appearance it is similar to the former, being rough, fleecy, and vascular, on its external surface; internally, smoother, and perforated with a number of small foramina, which are the orifices of vessels that open into this internal surface. In advanced

* *Vid.* Dr Hunter's Tables, Pl. xxvii. fig. 2. Pl. xxix. fig. 1. 2. 4. 5. Pl. xxxi. fig. 1. 2. &c.

ced geſtation, it adheres intimately to the former membrane, and is with difficulty ſeparated when the double decidua comes off entire; but the outer lamella more commonly adheres to the uterus after the placenta and other membranes are expelled, and is afterwards caſt off with the cleanſings.

The *double decidua* is opake in compariſon of the other membranes: the blood-veſſels are derived from the uterus, and can be readily traced into it. Dr Hunter ſuppoſed that the double decidua lines the uterus nearly in the ſame manner as the peritonæum does the cavity of the abdomen, and that the ovum is incloſed within its duplicature as within a double nightcap. On this ſuppoſition the ovum muſt be placed on the outſide of this membrane, which is not very readily to be comprehended, unleſs we adopt Signor Scarpa's opinion already mentioned, and ſuppoſe it to be originally entirely compoſed of "an inſpiſſated coagulable lymph."

3.

3. The *True Chorion*, or that connected with the amnion, is the firmeſt, ſmootheſt, and moſt tranſparent of all the membranes, except the amnios; and, when ſeparated from it, has a conſiderable degree of tranſparency. It adheres pretty cloſely to the internal ſurface of the cake, which it covers immediately under the amnios, and gives alſo a coat to the umbilical cord. It is connected to the amnion by means of a gelatinous ſubſtance, and is eaſily ſeparated from it.

4. The *Amnion*, or internal membrane, forms the external coat of the umbilical cord. This internal lamella of the membranous bag is by much the moſt thin, attenuated, and tranſparent of the whole; no veſſels have ever been diſcovered in it in the human ſubject. It is, however, firmer and ſtronger than the chorion, and gives the greateſt reſiſtance in the breaking of the membranes.

The ſmall bag, called *veſicula umbilicalis*, formerly deſcribed, and only conſpicuous in the early months from its ſituation, is placed between the amnion and chorion, near

near the attachment of the cord; and, from the colour of its contents, has been miſtaken for the urachus: but there is no allantois in the human ſubject.

The *allantois* in quadrupeds is an oblong membranous ſac, or pouch, placed between the chorion and amnion. This membrane communicates with the urachus, which in brutes is open, and tranſmits the urine from the bladder to the allantois.

5. The *Waters* are contained within the amnion, and are called the *liquor amnii.* They are pureſt, cleareſt, and moſt limpid in the firſt months; acquiring a colour, and becoming ſomewhat ropy, towards the latter end. They vary in different ſubjects, both in regard to conſiſtence and quantity; and, after a certain period, they proportionally diminiſh as the woman advances in her pregnancy. This liquor does not, in any reſpect, reſemble the white of an egg; it is ſaltiſh, and appears in every reſpect an excrementitious fluid.

Water is ſometimes collected between the chorion and amnion, or between the lamellæ

lamellæ of the chorion. This is called the *false water*: It is generally in much smaller quantity than the true water; and, without detriment to the woman, may be discharged at any time of pregnancy.

MAHARAJA SERFOJI'S ... TANJORE

SECTION V.

CHANGES ON THE UTERINE SYSTEM FROM IMPREGNATION.

Though the uterus gradually increases in size from the moment of conception till full time, and although its distention is proportioned to that of the ovum, with regard to its contents, it is, strictly speaking, never completely distended: for in early gestation, they are entirely confined to the fundus; and, at full time, the finger can be passed for some way within the orificium uteri without touching any part of the membranes*. Again, though the capacity of the uterus increases, yet it is not mechanically stretched, for the thickness of its

* See Dr Hunter's Tables, Pl. xxxi. fig. 1.

ſides does not diminiſh. The increaſed ſize ſeems, therefore, to depend on a proportional quantity of fluids ſent to that part, juſt as the ſkin, in the progreſs of a child's growth, does not become thinner, but preſerves its uſual thickneſs.

This is proved from ſeveral inſtances of extra-uterine fœtuſes, where the uterus, though there were no contents, was enlarged in ſize, from the additional quantity of fluids tranſmitted, as if the ovum had been contained within its cavity. Boehmerus* relates the ſame circumſtance, without attempting to explain it, in the hiſtory of a caſe of extra-uterine conception in the fifth month. The uterus is painted of a conſiderable ſize, though the fœtus was contained in the ovarium.

The gravid uterus is of different ſizes in different women, varying according to the bulk of the fœtus and involucra. The ſituation alſo varies according to the increaſe

* Boehmeri Obſ. Anatom. Rarior. Faſciculus notabil. circa uterum human. Obſervatio de Conceptione ovaria, tabula prima.

increaſe of its contents, and the poſition of the body. For the firſt two or three months, the fundus is nearly as before impregnation; but as the uterus ſtretches, it gradually acquires a more rounded form. In general, the uterus never riſes directly upwards, but inclines a little obliquely; moſt commonly to the right ſide*: its poſition is never, however, ſo oblique as to prove the ſole cauſe either of preventing or retarding delivery.

Though conſiderable changes are occaſioned by the gradual diſtention of the uterus, it is difficult to judge of pregnancy from appearances in the early months. For the firſt three months, the os tincæ feels ſmooth and even, and its orifice is nearly as ſmall as in the unimpregnated ſtate. When any difference can be perceived, it conſiſts in the increaſed length of the projecting tubercle of the uterus, and the ſhortening of the vagina from the deſcent of the fundus uteri through the pelvis. This change in

* See Dr Hunter's Tables, Pl. i. iii. and iv.

in the poſition of the uterus, by which the projecting tubercle appears to be lengthened, and the vagina proportionally ſhortened, chiefly happens from the third to the fifth month. From this period the cervix begins to ſtretch and to be diſtended, firſt a the upper part; and then the os tincæ begins alſo to ſuffer conſiderable changes in its figure and appearance. The tubercle ſhortens, and the orifice expands; but during the whole term of geſtation, the mouth of the uterus is ſtrongly ſealed up with a ropy mucus, which lines it and the cervix, and begins to be diſcharged on the approach of labour. In the laſt weeks, when the cervix uteri is completely diſtended, the uterine orifice begins to form an elliptical tube, inſtead of a fiſſure; and ſometimes, eſpecially when the parietes of the abdomen are relaxed by repeated pregnancy, diſappears entirely, and is without the reach of the finger in touching. Hence the os uteri is not placed in the direction of the axis of the womb, as has generally been ſuppoſed.

The

The progreſſive increaſe of the abdominal tumor, from the increaſing ſize of the uterus, affords a more deciſive mark of the exiſtence and period of pregnancy than any others; and the progreſs is nearly as follows.

About the fourth, or between the fourth and fifth month, the fundus uteri begins to riſe above the pubes or brim of the pelvis, and the cervix to be ſomewhat diſtended. In the fifth month, the belly ſwells like a ball with the ſkin tenſe, the fundus extends about half way between pubes and navel, and the neck is ſenſibly ſhortened. In the ſeventh month, the fundus, or ſuperior part of the uterine tumor, advances as far as the umbilicus; and the cervix is then nearly three fourths diſtended. In the eighth, it reaches midway between the navel and ſcrobiculus cordis; and, in the ninth, to the ſcrobiculus itſelf, the neck then being entirely diſtended; which, with the os tincæ, become the weakeſt parts of the uterus. Thus at full time the uterus occupies all the umbilical and hypogaſtric regions; its

ſhape is almoſt pyriform, that is, more rounded above than below, and having a ſtricture on that part which is ſurrounded by the brim of the pelvis*.

During the progreſs of diſtention, the ſubſtance of the uterus becomes much looſer, of a ſofter texture, and more vaſcular than before conception; and the diameter of its veins is ſo much enlarged that they have acquired the name of *ſinuſes*. They obſerve a more direct courſe than the arteries, which run in a ſerpentine manner through its whole ſubſtance, and anaſtomoſe with one another, particularly at that part where the placenta is attached: it is in this part alſo that the vaſcular ſtructure is moſt conſpicuous.

The arteries paſs from the uterus through the decidua, and open into the ſubſtance of the placenta in an oblique direction. The veins alſo open into the placenta; and by injecting theſe veins from the uterus with

* See Dr Hunter's Tables, Pl. xvi.

with wax, the whole ſpongy or maternal part of the placenta will be filled*.

The muſcular ſtructure of the gravid uterus is extremely difficult to be traced with any exactneſs. In the wombs of women who die in labour, or ſoon after delivery, fibres running in various directions are obſervable more or leſs circular.

Theſe ſeem to ariſe from three diſtinct origins, *viz.* from the place where the placenta adheres, and from the aperture or orifice of each of the tubes: but it is almoſt impoſſible to demonſtrate regular plans of fibres continued any length without interruption.

The appendages of the uterus ſuffer alſo conſiderable changes; for the tubes and ovaries gradually go off below the fundus as it ſtretches, and the broad ligaments at full time are almoſt entirely obliterated. At full time, eſpecially in a firſt pregnancy, when the womb riſes higher than in ſubſequent impregnations, the ligamenta rotunda

* See Dr Hunter's Tables, Pl. x. fig. 1. and 2.; Pl. xv. fig. 1. &c.

tunda are conſiderably ſtretched; and to this cauſe thoſe pains are probably owing which ſtrike from the belly downwards in the direction of theſe vaſcular ropes, and are often very painful and diſtreſſing towards the latter end of geſtation. Again, as the uterus, which is chiefly enlarged towards the fundus, at full time ſtreches into the cavity of the abdomen without any ſupport, leaving the broad ligaments below the moſt bulky part, we can readily ſee, that by pulling at the umbilical cord to deliver the placenta, before the uterus is ſufficiently contracted, the fundus may be pulled down through the mouth of the womb, even though no great violence be employed. This is ſtyled the *inverſion of the uterus;* and is a very dreadful, and generally fatal, accident. It is the conſequence only of ignorance or temerity; and can ſcarcely happen but from violence, or from an officious intruſion on the work of nature, by pulling at the rope while the woman is faint or languid, and the uterus in a ſtate of atony.

In ſome rare inſtances, the force of labour, which propels the child where the cord is ſhort naturally, or rendered ſo by circumvolutions round the body of the child, may, when the placenta adheres to the fundis uteri, bring it down ſo near the os tincæ, that little force would afterwards be ſufficient to complete the inverſion. This ſuggeſts a precaution, that in the above circumſtances, if ſtrong labour pains ſhould continue, or a conſtant bearing down enſue, after the delivery of the child, the practice of pulling by the cord ſhould be carefully avoided, and the hand of the operator be prudently conducted within the uterus, to ſeparate the adheſion of the cake, and guard againſt the hazard of inverſion *.

The ovaria alſo ſuffer ſome changes from pregnancy.

A

* Of ſeven unhappy caſes of inverted uterus where I have been called within ſeveral years, the conſequence of ignorance or temerity of the practitioner, in one ſingle inſtance only the woman ſurvived the ſhocking accident. The other women had generally expired before any attempt could be made to relieve them.

A roundiſh figure of a yellow colour appears in one of them, called by anatomiſts the *corpus luteum*; and in caſes of twins, a corpus luteum often appears in each ovarium.

If the ovarium be injected in the latter months, the corpus luteum will appear to be compoſed chiefly of veſſels. A portion of it, however, in the centre, will not be filled; from which it is, with ſome reaſon, ſuſpected that it is a cavity, or that it contains a ſubſtance not yet organiſed *.

SECTION VI.

MANNER OF CIRCULATION BETWEEN THE MOTHER AND FOETUS.

IT is obvious that the communication between the parent and child is carried on entirely by means of the placenta. No immediate communication of blood veſſels has yet been clearly ſhown by the experiments of any anatomiſt; nor has any coloured injection

* See Dr Hunter's Tables, Pl. v.; Pl. xv. fig. 5.; Pl. xxix. fig. 3.; and Pl. xxxi. fig. 3.

injection been pushed from the uterus into the interior vascular part of the cake, nor from the fœtus or umbilical vessels into the cellular part, except in consequence of extravasation. The cellular part of the placenta, derived from the decidua, is not a spongy inorganic substance, merely intended for the attachment of the cake; but probably a regularly constructed and organised part belonging to the mother. The cells, therefore, cannot be filled by injection from the umbilical vessels, though an injection will readily pass from the vessels of the uterus.

We find a similar structure obtain in cows, where the cellular can be easily separated from the vascular part, and the distinct property of each ascertained.

As the structure of the cellular part of the placenta is somewhat similar to that of the more simple glands, it may be reasonably inferred, that it is intended for other purposes besides merely receiving the mother's blood, and permitting its stagnation.

It

It ſeems that an operation ſimilar to ſecretion is carried on in the placenta.

This mode of circulation is admirably well contrived for the preſervation of the child from diſeaſes which would otherwiſe be communicated from the mother. If the mutual communications were kept up by continuous veſſels, the fœtus would conſtantly be in danger of ſuffering when the mother's circulation was accelerated or otherwiſe diſturbed.

SECTION VII.

CIRCULATION IN THE FOETUS.

THE blood of the fœtus from the aorta is conveyed along the arteries of the umbilical cord, (and theſe are continuations of the internal iliacs, which are larger than the external, and paſs up on each ſide of the urinary bladder) to the placenta.

Through every part of the placentary maſs, the blood thus conveyed is diſtributed by the arteries ramifying in the moſt

minute

minute manner, as already mentioned, and then it is collected into venous branches, which uniting form the umbilical vein. This veſſel reconducting the blood, runs along the funis into the abdomen, where it enters under the liver. In that viſcus it divides at nearly half a right angle into two branches, by one of which, called the *ductus venoſus*, a part of the blood is tranſmitted immediately to the lower vena cava.

By the other branch the reſt is carried to the vena portarum, from whence it is circulated through the liver, and then is ſent alſo into the cava.

All the blood now in the cava is ſaid to be carried into the right auricle of the heart, and from thence, it is commonly alleged by phyſiologiſts, a part at once paſſes into the left auricle through a ſmall oval hole (the *foramen ovale*) placed in the partition between the auricles. An opinion rendered plauſible, from there being a valve ſo ſituated as to admit the paſſage of fluids from the right to the left, and not from the left to the right auricle.

Of

Of the remainder of the blood, (that which paſſes into the right ventricle), not above one half is circulated through the lungs, for a part is conveyed to the aorta by a canal leading to it from the pulmonary artery, termed *canalis arterioſus*, which, like the canalis venoſus, is peculiar to the fœtus.

Thus the characteriſtic diſtinction between the circulation of blood in the fœtus and that in the natus conſiſts in this, that in the latter the whole maſs is circulated through the lungs; whereas in the former, no more blood is conveyed to them than ſeems neceſſary for their nutrition.

SECTION VIII.

POSITION OF THE FOETUS IN UTERO.

THE fœtus is commodiouſly adapted to the cavity of the uterus, and deſcribes an oblong or oval figure; its ſeveral parts being collected together in ſuch a manner as to occupy the leaſt poſſible ſpace. The ſpine

ſpine is rounded, the head reclines forward towards the knees, which are drawn up to the belly, while the heels are drawn backwards towards the breech, and the hands and arms are folded round the knees and legs. The head of the child is generally downwards. This does not proceed, as was commonly alleged, from the funis not being exactly in the middle of the child's body, for it is not ſuſpended by the funis: the reaſon is, becauſe the ſuperior parts are much larger and heavier in proportion than the inferior. When other parts preſent, it ſeems owing to the motion of the child altering its figure when the waters are much diminiſhed in quantity, or to circumvolutions of the cord; when the poſition is once altered, it becomes confined or locked in the uterus, and cannnot eaſily reſume its original poſture.

As the figure of the fœtus is oval, and the head naturally falls to the moſt depending part of the uterus, the vertex generally points to the os tincæ, with the ears diagonally in the pelvis between the pubes and ſacrum.

ſacrum. The fœtus is mechanically diſpoſed to aſſume this poſition from its peculiar figure and conſtruction, particularly by the bulk of the head and articulation with the neck, by the action of its muſcles, and by the ſhape and conſtruction of the cavity in which it is contained.

SECTION IX.

PECULIARITIES OF THE FOETUS.

THE fœtus, both in external figure and internal ſtructure, differs materially, in many ſtriking circumſtances, from the adult. It is ſufficient for our preſent purpoſe to mention a few particulars.

The head is very large in proportion to the reſt of the body; the cranial bones are ſoft and yielding, and the ſutures not yet formed; ſo that the bulk of the head may be diminiſhed in every direction, and its paſſage conſequently be rendered more commodious. The bones of the trunk and extremities, and all the articulations, are alſo remarkably

remarkably flexible. All the apophyſes are epiphyſes; even the heads and condyles and brims of cavities, inſtead of bone, are of a ſoft cartilaginous conſiſtence.

The brain, ſpinal marrow, and whole glandular as well as nervous and ſanguiferous ſyſtems, are conſiderably larger in proportion in the fœtus than in the adult. The *Thymus* gland is of a very remarkable ſize. The liver and kidneys are much larger in proportion; and the latter are divided into a number of ſmall lobes, as in the brute.

The fœtus alſo differs in ſeveral circumſtances from a child who has breathed.

The cavity of the thorax is leſs in proportion than after reſpiration. The lungs are ſmaller, more compact, of a red colour like the liver, and ſink in water; but putrefaction, and a particular emphyſema, as in diſeaſes of cattle, and blowing into them, make them ſwim. This circumſtance ought to prevent us from haſtily determining, by this criterion, whether a child

has breathed or not. Neither does their ſinking prove that the child never breathed; for a child may die, or be ſtrangled in the birth, or immediately after, before the lungs are fully inflated.

The arterial and venous ſyſtems are alſo different from that of the child. Hence the difference in the manner of circulation already taken notice of.

SECTION X.

SUBJECTS CONNECTED WITH THE PRECEDING.

I. Super-foetation.

Soon after impregnation takes place, the cervix and orificium uteri become entirely cloſed up by means of a thick viſcid gluten: the internal cavity is alſo lined by the external membrane of the ovum, which attaches itſelf to the whole internal ſurface of the fundus uteri: the Fallopian tubes alſo become flaccid; and are, as geſtation advances, ſo altered in ſituation, that they cannot reach the ovaria to receive or convey

convey another ovum into the uterus. For these, and other reasons, the doctrine of super-fœtation, or the possibility of one conception supervening soon after another in the same woman, is now pretty generally exploded. This doctrine seems to have arisen from the case of a double or triple conception; where, some time after their formation and progressive evolution *in utero*, one fœtus has been expelled, and another has remained; or, after the extinction of life at an early period, one or more may still be retained, and thrown off in a small and putrid state, after the birth of a full grown child.

The uterus of brutes is divided into different cells; and their ova do not attach themselves to the uterus so early as in the human subject, but are supposed to receive their nourishment for some time by absorption. Hence the os uteri does not close immediately after conception; for a bitch will admit a variety of dogs while she is in season, and will bring forth puppies of these different species.—Thus it is common for

a gre-hound to have, in the ſame litter, one of the gre-hound kind; a pointer; and a third, or more, different from both. This is another circumſtance that has given riſe to the idea that ſuper-fœtation ſometimes takes place in the human ſubject, but it can only happen when there is a double ſet of parts; inſtances of which are very rare.

II. EXTRA-UTERINE FOETUSES, OR VENTRAL CONCEPTION.

The impregnated ovum, or rudiments of the fœtus, is not always received from the ovarium by the Fallopian tube, to be thence conveyed into the cavity of the uterus. For there are inſtances where the fœtus ſometimes remains in the ovarium, and ſometimes even in the tube; or where it drops out of the ovarium, miſſes the tube, falls into the cavity of the abdomen, adheres to the neighbouring parts, and is thereby nouriſhed.

In ſome of theſe caſes the contents burſt into the cavity of the abdomen, in others they are diſcharged through openings form-

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ed by abſceſſes; and, in others, the fœtus becoming ſhrivelled and covered with a kind of calcareous matter, remains for many years in the body without occaſioning any uneaſineſs*.

III. Monsters.

Every conſiderable deviation in the ſtructure of a fœtus from the common order of nature is conſidered as monſtrous, whether ſuch deviation be conſiſtent with life or not; and the production is commonly termed a *monſter.* This definition of a monſter comprehends all the varieties that have been obſerved; and theſe we ſhall endeavour to reduce under four general heads.

1. Thoſe productions which have ſupernumerary parts. Theſe include all the variety, from the famous inſtance of the Bohemian ſiſters who were joined together by the

* Vide Memoires de l'Acad. de Sciences; Philoſophical Tranſactions; Manget. Biblioth. Anat.; Med. Eſſays; and Smellie's Caſes.

the glutæi muſcles and the inteſtinal canal, to thoſe fœtuſes which have only an additional finger or toe.

2. Thoſe whoſe parts are defective; which has happened with reſpect to every part of the animal body.

3. Thoſe who have any remarkable diſtribution of any of the veſſels, nerves, or excretory organs, whether externally viſible or not.

4. The productions of animals of different ſpecies, exemplified in the mule produced by the mixed generation of an aſs and a mare.

IT is very difficult to give an explanation of theſe deviations, nor indeed is it to be expected, while the proceſs of generation itſelf is ſo great a myſtery. If we allow with BONNET, &c. that a germ or embryo of the future production exiſts in the female previous to the impregnation, many of theſe deviations muſt to it be referred. Though this, however, removes the difficulty, it by no means ſolves it. Supernumerary

numerary parts, it has been thought, might be more readily accounted for; for if two ova become contiguous in their gelatinous ſtate, they may eaſily unite; and this contiguity and union will prevent the evolution of many of the parts, and the production will appear as one. This, it is alleged, has been often the caſe, as in the Bohemian ſiſters mentioned under the firſt ſpecies; and the union in the different monſters has at various times been ſeen gradually more and more complete: ſo that moſt ſupernumerary parts proceed from this cauſe is an idea ſupported by very plauſible arguments.

It may, however, be doubted whether two ova, in their gelatinous ſtate, can become contiguous, as in caſes of twins, triplets, &c. each fœtus is included in a diſtinct membranous bag.—But this ſubject is too obſcure to be minutely conſidered in this work.

PART II.

PATHOLOGY.

CHAP. I.

DISEASES PECULIAR TO WOMEN IN THE UNIMPREGNATED STATE.

ALL the diseases to which women, in the unimpregnated state, are peculiarly liable, are found to depend on one or more of the three following circumstances: viz. derangement of structure in the sexual organs, irregularities of the catamenia, and the sympathy between the uterus and other parts.

Although the complaints arising from these sources very properly engage lecturers on midwifery in a pretty ample detail; it is necessary, in this work, only to notice those diseases which claim the principal at-

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tention from their being common or from their being dangerous.

SECTION I.

TOPICAL DISEASES OF THE SEXUAL ORGANS.

THE *mons veneris* and *labia* are liable both to œdematous and inflammatory swellings, and to tumors, chiefly of the steatematous kind. The latter sometimes, from a small beginning, gradually enlarge to an enormous size: but as they commonly adhere by a small peduncle, their excision is a simple operation, and is seldom followed by hæmorrhage that cannot be easily stopt; they leave but slight marks behind them, and for the most part heal readily.

Oedematous swellings are of two kinds; general, or local. The first are the attendants of an universal leucophlegmasia, the consequence of a dropsical habit, and the treatment must then be conducted on general principles, with a view to correct the fault

fault in the habit. The latter arife from venous plethora, and the preffure of the bulky uterus interrupting the returning blood from the lower extremities; hence the ferous part is extravafated, and forms a local œdema. The fwelling at firft appears on the feet and legs, and gradually extends to the thighs and labia. But as this complaint is chiefly fymptomatic of pregnancy, we cannot, with propriety, confider it in this fection.

The *labia*, when inflamed or abraded, from whatever caufe (as from the involuntary difcharge of acrid urine, or any other acrimonious difcharge which excoriates the parts), may grow together if not prevented by frequent bathing: fhould this happen, they muft be feparated with a fcalpel, and the like accident in future prevented by proper care.

The *clitoris* fometimes becomes enlarged greatly beyond the ordinary fize. When incommodioufly elongated, amputation may be performed with fafety. The enlargement

ment of the *nymphæ* also requires the same treatment.

Extirpation of the *carunculæ myrtiformes* can never be necessary: but *fungous excrescences* of these parts may generally be removed by caustic, or any more gentle escharotic application.

The *urethra*, too, is subject to disorders and accidents: such as fungous excrescences, contusion, laceration, inflammation, gangrene, &c.

The first of these may, when large, be cut out with scissars, or destroyed by the application of the bougie. All the others, as now enumerated, may be the consequence of a stone sticking in the passage. When the expulsion cannot be forwarded by the semicupium, the stone must be extracted, either by dilating the urethra itself, or cutting upon it through the vagina. The symptoms of a stone in the female bladder, towards its neck, or in the urethra, are nearly similar to those which occur in the male; and the treatment and

operation are too well known to require a description.

The *hymen* being imperforated in some subjects, the os externum is entirely shut up, and the membrane is expanded even to the meatus urinarius. It is seldom attended with inconvenience till the age of puberty, when the menses should appear. About that time a swelling or tumor is formed by the confinement of the accumulating menstrual fluid. The quantity increases at every succeeding period; and, by the distention of the parts, excites the most troublesome and painful complaints. The cure consists in dividing the membrane by incision. The opening should be sufficiently large, that the whole contents may be freely evacuated: In some cases the thickness is so great, as to require the use of a trocar*. The re-union of the lips of the wound must, by proper dressings, be carefully guarded against.

Narrowness of the vagina sometimes occurs

* See Edinburgh Med. Commentaries, Vol. II. part 2. Sect. ii. Case iv.

occurs. This may be either natural, from original conformation; or accidental, in consequence of disease. Cicatrices may be formed from a laceration after severe labour, in consequence of ulceration, erosion, &c. Preternatural constrictions may likewise be induced, from the use of styptic applications, or fumigations. The cure may be attempted by emollient fomentations; as by the steams of warm water directed to the parts; and by introducing a small tent of compressed sponge, which had been previously moistened and kept tight bound with tape till dry. This, by imbibing the moisture, will swell and expand; and thus the aperture will be gradually stretched. The tent must be withdrawn every day, by means of a thread fixed through its middle, and a larger one introduced in its stead. The sponge should be smooth, and lubricated with pomatum. This process most be continued till the passage becomes sufficiently enlarged.

If these methods fail, recourse must then be

be had to the knife: though, in the ſimple contraction of the cavity of the vagina, this expedient is ſeldom neceſſary, and the attempt is often attended with the utmoſt danger; therefore it ſhould never be determined on till every other method has failed. The dilatation, which had previous to impregnation ſeemed impracticable, has very often been accompliſhed by labour-pains.

Sometimes there is a natural defect in the genital parts, from an original malconformation; ſo that the vagina is either imperforated altogether, or there remains only a foramen ſufficient to tranſmit the menſtrual blood. If, from coalition of the parietes of the vagina, the paſſage be entirely ſhut up, any attempt to force it would be vain. The orifice in the latter caſe will afford a proper direction for the knife; but the operator muſt be cautious not to miſtake the urethra for the paſſage into the vagina.

When the vagina is impervious altogether,

ther, the uterus has been sometimes found wanting*.

The *perinæum*, from the distention it suffers in time of labour, or from mechanical violence in delivery, is subject to inflammation, tumefaction, laceration, and their consequences; and these injuries, in some cases, are not confined to the perinæum only, but even extend to the vagina, rectum, and bladder. If these complaints resist the common means of relief, such as frequent bathing, fomentations, cataplasms, &c. and terminate in gangrene, leaving behind them fistulous sores with callous lips, unless a cure be effected by time, they generally continue in a fistulous state, without a possibility of remedy.

THE *uterus*, like other parts, may also be affected with various disorders: These are chiefly inflammation and its consequences; sarcomatous, fungous, and polypous tumors;

* Vid. Morgagni, de causis et sedibus morborum, Epistol. XLVI.

mors; ſtony concretions, tympanites, ſchirrhous and cancerous tumors, &c.

When the *os tincæ* is ſhut up, either originally, or by cicatrix in conſequence of ſupperation, laceration, ulceration, or the like, the caſe is generally incurable; except the menſtrual blood by its weight force a paſſage, or point out the manner of procuring it: if that fails, future ſterility is the unavoidable conſequence.

Original conformations of this kind ſeldom admit of any treatment; for this reaſon, becauſe, beſides the imperviouſneſs of the os tincæ, the uterus itſelf ſometimes appears to be a ſolid body without any cavity in the centre.

Sarcomatous, Fungous, or Polypous Tumors, ariſe from all parts of the vagina and uterus. They happen to women at every period of life, but moſt frequently towards the decline. They generally proceed from an obſtruction of the ſmall glands of the parts; and are leſs or more difficult to diſcover or remove, as their origin is low or high in the vagina or uterus.

rus. Their texture or consistence is very different; sometimes they are tender and mucilaginous, like those in the nose; at other times firm and solid, like a wen. Their existence is discovered by a careful inquiry into the circumstances of the case, and by an examination of the parts; sometimes their basis is very considerable; though they generally adhere by a small neck. They sometimes, like schirri, continue indolent for many years. In their mildest state, they are attended with perpetual stillicidium from the vagina, and sometimes with profuse and dangerous floodings. They must be carefully distinguished from *herniæ*, *prolapsus uteri*, and other tumors. Polypi, when curable by an operation, may generally be removed by ligature; a safer method than cutting with the scalpel, as they are often supplied with large blood vessels, from which there may be danger of a fatal hæmorrhagy; and it may be added, that they are commonly beyond the reach of the knife.

For fixing the ligature, the fingers of the operator sometimes may be sufficient. When

this method fails, Dr HUNTER's needle, or M. LEVRET's double canula for applying and fixing the ligature over the tumor, are the moſt ſimple and ſucceſsful expedients. M. LEVRET's inſtrument is nothing more than a piece of flexible gold or ſilver wire, paſſed in the form of a nooſe, through a double canula: This is to be conveyed into the vagina, and carried over the tumor till it reach the baſe; the ends of the wire muſt be gently drawn, or it muſt be twiſted round as tight as the patient can eaſily bear; the canula muſt afterwards be fixed to the thigh, and the wire tightened every day as it ſlackens. By this means the circulation in the tumor is ſtopped, and in two or three days the polypus will drop off. In fixing the ligature, the operator muſt be cautious not to miſtake the tubercle of the os tincæ for the polypous tumor; a blunder which would prove of fatal conſequence to the patient.

STONY CONCRETIONS, and even WORMS, it is ſaid, have been ſometimes found

found within the uterus*. Calculous concretions have indeed been discovered almost in every cavity of the human body; but such appearances rarely occur in the human uterus †. The existence of worms is not very probable.

TYMPANITES UTERI, mentioned by nosologists, is a disease which does not exist; but sometimes air is accumulated in the vagina, and is passed involuntarily, frequently with considerable noise. The only cure for this uncommon disorder depends upon removing the discharge which may give rise to it; for it is always connected with a morbid discharge from the vagina.

SCHIRROUS TUMORS are seldom discovered till the disease has made considerable progress. An uneasy weight and bearing down, suppression of urine, fluor albus, uterine pain, and sometimes flooding, are the usual symptoms; but the touch of the

* *Vide.* Miscellania Curios. Acad. Naturae.—Mem. de l'Acad. Royal des Scienc. Vol. II. &c.

† A very extraordinary case of that kind was published in 1800 by Dr M'Kay of Huntingdon.

enlarged indurated cervix or fundus uteri, in ſuſpicious caſes, afford the moſt infallible criterion. Theſe tumors, like ſimilar complaints in other parts, though they may long remain in an indolent ſtate, ſeldom admit of relief from medicine, and generally at length degenerate into cancer. Nor is any good to be expected from Peruvian bark, ſarſaparilla, or even the ſo-much extolled cicuta. The general health muſt then, in a very particular manner, be attended to, and the moſt urgent ſymptoms muſt be palliated. For this purpoſe, a cooling regimen, the moderate uſe of gentle laxatives, occaſional bleedings, and opiates, are the chief means.

A fœtid bloody diſcharge, along with an increaſe of pain, heat, and itching, mark the ulcerated or cancerous ſtate of the diſeaſe. The progreſs is then rapid; and the ſtench becomes intolerable even to the attendants as well as to the patient. The ravages of the diſeaſe are ſhocking; for ſtools, urine, blood, and matter, are ſometimes diſcharged from one orifice. In theſe unhappy

unhappy circumstances, little can be attempted by way of treatment, but to amuse the patient, by palliating the painful symptoms with opiates, and keeping the sores clean by injections, till death brings the only relief.

PROCIDENTIA or PROLAPSUS UTERI, is a change of place in the uterus, so that it falls down into the vagina, sometimes protruding through the os externum. The cause may either be general debility, or topical relaxation of the connecting parts, particularly of the vagina. The cure consists in the reduction and retention of the prolapsed part. When pessaries are disagreeable, the uterus may be suspended by a bit of sponge: Gently restringent injections sometimes prove useful; but a long-continued use of them will as certainly be hurtful, so that they should always be employed with caution. The general constitution should be strengthened by a proper regimen, bark, mineral waters, and the cold bath.

The *ovaria*, in common with other glandular parts, are subject to disease, such as

ſchirrous, ſteatematous, and dropſical ſwellings; by which they become often ſo much enlarged as to occupy the whole abdomen. Such caſes generally prove incurable. Tumors of the ovaria at length generally terminate in dropſy. The ſymptoms are analogous to thoſe of the aſcites; from which, however, they differ in ſeveral particulars.

In the beginning, the enlarged ovarium may be eaſily diſtinguiſhed from aſcites, by the ſwelling and pain being circumſcribed, and confined to one ſide; in the progreſs, by the advances being more ſlow and gradual; in its advanced ſtages, by œdematous ſwellings of the leg and thigh on the ſide affected, and by our being able to feel it from the vagina. The treatment conſiſts merely in palliating ſymptoms, as no means hitherto propoſed can be expected to produce a cure. When the tumor points outwardly, the contents, whether water or pus, muſt be evacuated by a free opening; when gelatinous or purulent, a conſtant drain, by means of a ſeton, may, in ſome caſes,

cases, be employed with advantage. The patient must afterwards be treated in the usual manner. The extirpation of the ovarium, in a diseased state, has been by some authors proposed: but when the tumor is very much enlarged, and perhaps adhesions to the neighbouring parts are already formed, the excision would at least prove a difficult, if not a very hazardous operation.

Bones, Hair, and Fat, are sometimes found in the tubes or ovaria; but they seldom afford such symptoms as indicate the true nature of the disease, and therefore are commonly beyond the reach of human art.

SECTION II.

IRREGULARITIES OF THE MENSES.

THESE comprehend *Amænorrhœa, Mænorrhagia, and Leucorrhœa*; and each distinct genus includes a considerable variety of species.

I. AMÆNORRHOEA consists of two species.

1. The retention or abſence of the menſes beyond their uſual period of appearance, called *emanſio menſium.*

2. An interruption in the periodical revolution, after the law of habit is eſtabliſhed, ſtyled *ſuppreſſions*, or *obſtructions.*

1.] The *Retention of the Menſes* proceeds from different cauſes; and may be referred to general debility of the ſyſtem, which impairs the action of the heart and arteries; or to ſome fault in the uterus itſelf, as torpor or rigidity of the veſſels. The firſt produces ſymptoms of debility, which are generally ſtyled *chlorotic:* and the indications of cure are, to ſtrengthen the ſtomach and ſyſtem; which is chiefly affected by bark, chalybeates, regimen, and the cold bath. Torpor and rigidity of the uterine veſſels may be ſometimes removed by the means uſually employed for removing torpor and rigidity of the whole ſyſtem; or by promoting the action of the uterine veſſels, more particularly by ſtimulating the neighbouring organs. This is chiefly to be attempted in thoſe caſes where Nature makes

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an effort; but from debility, or some other circumstance, is unable to accomplish it. She is then to be gently assisted, not forced. Aloetic purges, tinctura melampodii, small doses of calomel, or electricity, are the usual remedies; but they ought to be cautiously and prudently used. Tinctura fuliginis, or an extract prepared from it, and given in the dose of a scruple twice or thrice a day, is a more safe, and often more efficacious medicine in the latter case, along with the fœtid gums. But the warm bath, or a change of climate, are the most powerful antispasmodics, and may be often successfully employed when other remedies fail.

Though we are in general able to distinguish these two causes of debility and torpor, yet it must be allowed, that retention of the menses, from any cause, soon induces a debility, which, without some attention, may be mistaken for the original defect.

2.] *Suppression of the Menses.* The evacuation may be deficient in periods or quantity. The first is more properly termed *suppression,*

ſuppreſſion, or, in vulgar language, *obſtructions;* the latter, *ſparing* or *painful menſtruation*.

Suppreſſion. The menſes are rarely ſuppreſſed in conſequence of weakneſs; though it muſt be obſerved, that they are readily affected by any general diſorder in the habit: and in that view, the deviation is to be conſidered merely as ſymptomatic; and the cure muſt depend on correcting the fault in the conſtitution.

Spaſm, or rigidity of the uterine veſſels, is, perhaps, a more frequent cauſe than any other, occaſioned more remotely, by cold, irregular paſſions, plethora &c. The cure ought then to be directed with a view to remove the conſtriction of the uterine veſſels, and at the ſame time adapted to particular conſtitutions and ſymptoms. Venæſection, the warm bath, and emmenagogues, ſuited to the peculiar cicumſtances of the caſe, are the proper remedies. Medicines under the name of *emmenagogues* are not, however, to be relied on; and the means employed for reſtoring the evacuation

tion are most successfully exhibited when our efforts concur with those of nature. Violent emmenagogues, so far as they may have any tendency to affect the general health, are always improper, and frequently hurtful. In a simple suppression, it is often sufficient to keep the patient quiet; to avoid cold, and irregularities of diet; with the use of the warm bath, semicupium, or steams of warm water directed to the uterus, when the expected period approaches.

When the suppression is more obstinate, aloetic purges, electricity, and the most powerful relaxants and antispasmodics, must be employed.

Dismænorrhœa, *sparing*, *difficult*, or *painful Menstruation.* Some women menstruate with difficulty, the uterine efforts to throw out blood are painful and imperfect, the discharge is scanty; but the appearance continues for many days: during which the irritation is communicated from the uterus to the neighbouring parts, and, by sympathy, all over the system; very generally

rally producing pains about the articulation of the ſacrum, from thence to the ilia, and down the thighs; and not unfrequently attended wieh ſickneſs and reaching, nervous ſypmtoms, or a ſlight degree of hyſteria.

Theſe ſymptoms are beſt relieved by avoiding cold and irregularities for ſeveral days preceding the accuſtomed period; by uſing actual warmth then, and more particularly during the time of menſtruation; by drinking every night before bed-time, and in ſmaller quantities through the day, any mild, diluting, tepid drinks; by frequent reſt on a bed or ſofa; and, occaſionally, by the uſe of opiates.

II. MÆNORRHAGIA.—The menſes are only to be conſidered as exceſſive, when the periods recur ſo often, the duration is ſo long, or the quantity evacuated ſo great, as to induce debility, with its uſual ſymptoms. In all theſe caſes, Leucorrhœa is a frequent attendant. The cauſes may be active or paſſive, in common with other preternatural

ternatural hæmorrhagies. Of the former are, Plethora, univerſal or local; increaſed action of the veſſels from fever; exceſſive exerciſe; paſſions of the mind; ſtimuli applied to the uterus, or neighbouring parts; and every cauſe which determines the blood more forcibly to the uterus. Of the latter, Relaxation, univerſal or local. To diſtinguiſh *active* from *paſſive* mænorrhagia, is of the utmoſt conſequence in directing the treatment.

In the *firſt* caſe, which is generally preceded with headach, oppreſſed breathing, attended with heat, thirſt, quick full pulſe, and other febrile ſymptoms, we muſt be exceedingly cautious of giving a ſudden check to the flow, till the veſſels have been ſufficiently emptied by the diſcharge, or by the prudent uſe of venæſection. A ſpare cooling diet, cool air, open belly, and the ſtricteſt antiphlogiſtic regimen, are then eſſentially neceſſary. Heat, violent agitations and exerciſe, and every corporeal and mental exertion, ſhould be avoided.

In *paſſive* mænorrhagia, the diſcharge muſt

muſt be moderated by ſtyptics and opiates given internally; by cold wet applications to the pubes and external parts; by confinement to a horizontal poſture on a firm bed, with hair matreſs, and few bedclothes; by giving cold aſtringent drinks; and by avoiding every cauſe of irritation.

The vis vitæ muſt be duly ſupported by nouriſhing diet; but while the flow continues, every thing of the ſtimulating kind under the name of *cordial* muſt be very cautiouſly uſed.

When the hæmorrhagy hath entirely ceaſed, the interval muſt be improved to uſe the proper means for reſtoring the conſtitution. Of theſe, ſtrengthening diet, the moderate uſe of cordials, gentle exerciſe, the Peruvian bark and chalybeates, are principally to be relied on. In ſome paſſive caſes, the flow is almoſt conſtant. Cordials and tonics are then particularly indicated; and gentle exerciſe in a carriage has been often known to moderate or ſuppreſs the flow.

Under

Under the article of *Mænorrhagia* may alſo be mentioned;

Irregularities towards the ceſſation of the menſes.

The menſes generally become irregular towards their final ceſſation. This critical period in the female conſtitution is commonly announced by irregular interruptions; unexpected returns, or immoderate diſcharges; in many inſtances, by exceſſive, long continued, or frequent and alarming floodings. The ſymptoms aſſume a variety of appearances, as influenced by conſtitution, habit, manner of life, and the ſtate of the uterine ſyſtem. They are rather to be conſidered as the conſequence of a general change in the conſtitution, which terminates the age of child-bearing, than merely the effects of an accidental interruption, or exceſs of the periodical evacuation.

Every important change which the conſtitution ſuffers, is introduced by ſlow and inſenſible degrees: the alarming ſymptoms which at this period occur, proceed from the decline of life, ſtrictly ſpeaking, a diſeaſed

eaſed ſtate of the uterus, or miſtaken management. In ſome women, the menſes take their leave more abruptly; in others, more ſlowly; and no material inconvenience is perceived in either caſe. Women who never had children, thoſe who never enjoyed good regular health, thoſe whoſe conſtitution has been impaired by frequent labours or miſcarriage, and thoſe who are nervous and delicate, are more commonly the ſubjects of complaint towards this period.

The particular ſymptoms and conſtitution, the age of the patient, her manner of life, and other circumſtances formerly mentioned, will direct the proper treatment.

If no obvious inconvenience ariſe from the abſence of the Menſes, it would ſurely be abſurd to injure the conſtitution by a ſudden change of manner of living, by abſtemious diet and debilitating evacuations. On the contrary, if the ſymptoms indicate a full habit and plethoric diatheſis,

ſis, venæſection, purgatives, and ſpare diet, are obviouſly neceſſary.

Frequent or immoderate floodings, attended with ſymptoms of debility, muſt be treated as already directed. In relaxed weakly women, the conſequences are always to be leſs or more dreaded: the flux muſt be checked by cold wet applications; the painful ſymptoms relieved by opiates; and the conſtitution afterwards ſtrengthened by nutritious diet, bitters, &c.

Shooting pains about the region of the uterus, the pubes, and breaſts, along with frequent floodings, or leucorrhœa, indicate ſuſpicion of ſchirrous or cancerous diſpoſition, and are generally preludes of diſeaſe, which either ends fatally, or renders the remains of life uncomfortable.

Floodings in the unimpregnated ſtate, ſeemingly alarming and hazardous from their exceſs or frequency, are never to be dreaded, while no quantity of clots or concretions are voided, while they are unaccompanied with violent pain in the hypogaſtric region or other ſymptoms of mor-

bid prediſpoſition. They may generally be moderated by ſome of the means formerly recommended in *mænorrhagia*; and if the ſtrength be kept up, though the hæmorrhagy may occaſionally recur at vague and irregular periods, even for two or three years, I have never, in the courſe of a long practice, known it to end fatally in a ſingle inſtance: a complete recovery is generally at laſt accompliſhed, and the conſtitution reſtored, with the proſpect of a ſtate of good health for a conſiderable time after.

III. Leucorrhoea, *Fluor Albus*, or *Whites*.—Every diſcharge of a mucous or ſerous nature from the vagina, is comprehended under this title; but one ſpecies only of the diſeaſe properly belongs to this head. To avoid repetitions, however, it is better to conſider the different ſpecies at once.

1*ſt*, When the fluid diſcharged has a glairy appearance, ſomewhat like thin ſtarch, it conſtitutes the mildeſt ſpecies of leucorrhœa, being attended with no pain, and being

being productive of no bad effect whatever on the general health.

The discharge in this case proceeds from the mucous glands of the vagina, and is occasioned by any cause capable of increasing the secretion from these glands. Few women somewhat advanced in life are entirely free from it. Those who are inactive and sedentary, relaxed or weakly, and those who have had many children in rapid succession, or who have been subject to frequent abortion, or to irregularities of the menses, are particularly liable to this complaint.

The indications of cure are to remove any irritating cause, and to restore tone to the affected parts. The latter of these objects may be attained by the use of the cold bath and the injection of astringent fluids into the vagina.

2*d*, The discharge of a thick yellow or offensively fetid fluid, constitutes a disease of a very different nature. It is always attended with considerable irritation about the parts, and often resembles gonorrhœa.

It occurs in women of a groſs corpulent or plethoric habit.

This diſcharge proceeds probably from the glands of the cervix uteri as well as thoſe of the vagina. It is to be regarded as the reſult of an effort of nature to relieve the ſyſtem from over-depletion.

The means of cure are blood-letting, the moſt cooling regimen, and the frequent uſe of purgatives. Aſtringent injections would prove highly injurious.

3d, The laſt ſpecies of the diſeaſe (that which properly ſpeaking ſhould alone have been conſidered under this head) conſiſts of a thin ſerous-like diſcharge, attended with pain and weakneſs of the lumbar region, and ſymptoms of indigeſtion, and great general debility. The diſcharge is thought to proceed from the ſame ſource as the menſes; an opinion which is founded on the obſervation, that at each periodical return the ſymptoms of indiſpoſition are greatly aggravated, and the evacuation is in ſmaller quantity, and of a much paler colour.

This

This species of leucorrhœa in many cases obstinately resists all remedies, rendering the patient not only exceedingly unhealthy, but also barren. The most rational indications of cure are to restore strength to the general system, and to remove the local disease of the uterus.

With the former view, Peruvian bark, the various preparations of steel, invigorating diet, regular exercise, &c. may be prescribed. And for the latter purpose bals. capiv. or bals. tolutan, may be given internally, and the cold bath and astringent injections may be employed.

Sterility. Many circumstances prove causes of barrenness; and of these a great number admit of no remedy.

Hence medical treatment can only avail in cases where sterility arises from irregularities of the catamenia, from universal or local debility, or from some obvious derangement in the structure of the parts, which can be repaired by a chirurgical operation.

SECTION III.

DISEASES SOMETIMES MISTAKEN FOR GESTATION.

VARIOUS diſeaſes incident to the uterine ſyſtem, and other morbid affections of the abdominal viſcera, frequently excite the ſymptoms, and ſometimes aſſume the appearance, of uterine geſtation.* Complaints ariſing from a ſimple obſtruction are ſometimes miſtaken for thoſe of breeding; and diſeaſed tumors any where in the pelvis, or about the region of the uterus, ſo nearly, in ſome inſtances, reſemble pregnancy in their ſymptoms, that the ignorant patient is often deceived.

In many of theſe caſes, the menſes diſappear; nauſea, reachings, and other ſymptoms of breeding, enſue. Flatus in the bowels is miſtaken for the motion of the child; and in the advanced ſtages of the diſeaſe,

* Vid. Morgagni de cauſis et ſed. Morb. Ep. xlviii.

disease, from the pressure of the swelling on the adjacent parts, tumefaction and hardness of the mammæ supervene, and sometimes a viscid or serous fluid distils from the nipple. These circumstances strongly confirm the woman in her opinion, till time convinces her at last of her mistake.

False Conception. Mola. Sometimes after symptoms of pregnancy have for a considerable time taken place, substances of various appearances and structure are expelled from the uterus. Where these resemble an ovum, except in there being no traces of the embryo, they are termed false conceptions, and are in fact blighted ova. But when the substance is a solid fleshy-like mass it is styled *mola.* This is occasioned by some diseased action of the uterus little understood. It is not always the result of the sexual intercourse.

The same observation is applicable to another species of mole, viz. a mass of hydatids of different sizes, blended with a pa-

renchymatous ſubſtance. That this is ſometimes the ovum, changed by diſeaſe, cannot be denied; but that it is ſometimes formed under circumſtances where impregnation is impoſſible, can be proved by the moſt inconteſtible evidence.

CHAP.

THE TANJORE MAHARAJA S... MAHAL.

CHAP. II.

DISEASES OF PREGNANCY.

THE changes induced by conception frequently prove the source of disorders which assume a variety of appearances in different constitutions, and at different periods of pregnancy. These complaints are sometimes troublesome, but they seldom injure the constitution; their effects are generally temporary, their appearance and duration vague and irregular.

Some women, soon after conception, suffer the most violent sickness and feverish indisposition, which harass and distress them for several months; and, in some instances, continue during the whole term of gestation. In others, the breeding symptoms disappear after the early months. Many women feel no inconvenience but from the weight and pressure of the bulky uterus in the advanced months; while others

others enjoy a more than uſually good ſtate of health and ſpirits in theſe ſituations.

In the pregnant ſtate, the menſes are always ſtopped; and conſequently the determination of the blood is altered. From this difference of determination many of the ſymptoms of pregnancy may be accounted for; particularly the appearance of a general, and ſometimes of a local, plethora. It muſt be confeſſed, however, that many of the ſymptoms appear to be entirely of the nervous kind, and not readily explicable; but they are ſuch as often ariſe from the ſtoppage of any accuſtomed evacuation.

In the advanced ſtates of pregnancy, the preſſure of the uterus on the ſurrounding parts produces many complaints, which we can with more certainty refer to their proper cauſe.

SECTION I.

DISEASES DURING THE THREE FIRST MONTHS.

THE moſt common ſymptoms of breeding are, ſickneſs and loathing, vertigo and drowſineſs,

drowsiness, heartburn and diarrhœa, painful tention of the mammæ, nervous fits, deliquia, &c.

Sickness and Loathing. A slight degree of feverish indisposition, nauseating sickness, or vomiting, chiefly in the morning and after food, are in some instances almost coeval with conception; and the appetite is so whimsical and capricious, that the most extravagant and unaccountable substances are anxiously wished for.

The sickness from breeding is sometimes so severe as to resemble sea-sickness, and it is often as little in our power to relieve it. These early symptoms have been generally ascribed to the stoppage of the menses, although they commence often before the obstruction occurs. In many constitutions, however, particularly in the young and healthy, a certain degree of plethoric disposition, even in the more early periods of pregnancy, seems to prevail; small bleedings, therefore, where the sickness is attended with flushings, dry parched mouth and fauces, vertigo, or other symptoms of fe-

ver,

ver, are ſafe and beneficial, and often give all the relief in our power to afford. Although a raſh, indiſcriminate, or frequent uſe of venæſection is to be guarded againſt as a hazardous expedient, it may often, if prudently employed, be the means of preventing abortion. It may be ſafely performed at any time of geſtation, and repeated according to the urgency of the ſymptoms. But ſmall bleedings are always to be preferred to copious evacuations; which, in every period of pregnancy, eſpecially in the early months when the hazard of miſcarriage is greateſt, ſhould be avoided.

When the ſtomach appears affected, along with conſtant loathing, or frequent retchings, the offenſive matter ſhould be diſcharged by gentle vomits of ipecacuan, or of infuſions of chamomile flowers, or of columbo. The violent efforts of natural vomiting, which threaten the moſt diſagreeable conſequences, and ſometimes actually throw off the conception, are in ſome inſtances entirely removed, in many caſes greatly

greatly diminished, after the operation of a gentle emetic.

Small doses of rhubarb should be given to keep the body moderately open: the patient should also be put on a course of light aromatic and strengthening bitters; and her diet, air, exercise, and amusement, should be properly regulated.

In constitutions of the nervous irritable kind, opiates sometimes procure a temporary relief from sickness and vomiting, when every other remedy fails.

Vertigo and Drowsiness.—These proceed from plethora, connected with a particular state of the nervous system. Small bleedings, when very troublesome, gentle exercise, an abstemious temperate diet, and every means of obviating plethora, and diverting the attention by promoting a cheerful state of mind, are the best remedies.

Heartburn, Diarrhoea, &c. are common symptoms of breeding sickness, and must be treated nearly in the same manner as similar complaints from other causes. They chiefly depend on the state of the stomach,

mach, peculiarly influenced by that of the uterus. The acefcent tendency of the ftomach fhould be obviated, and the digeftive faculty reftored.

TUMEFACTION, TENSION, *and* PAINS *in the* MAMMÆ.—If tight lacing be avoided, and the breafts be permitted to expand, no material inconvenience will arife from their enlargement. Thefe fymptoms are the natural confequence of a natural caufe, and feldom require medical treatment. If they fhould be very troublefome and uneafy, gentle friction with oil, or anointing with pomatum, and covering them with foft flannel or fur, will in moft cafes leffen the painful tenfion. In plethoric habits, where painful hardnefs and fwelling are exceffive, and do not readily yield to more fimple remedies, venæfection and moderate purging may be neceffary.

DELIQUIA, NERVOUS OR HYSTERIC FITS. Lownefs and depreffion of fpirits are incident to the early ftages of pregnancy, and are merely the effects of uterine irritability communicated to the nervous

fyftem;

system; for the mind, as well as the body, is *then* peculiarly susceptible of irritation.

FAINTINGS more seldom occur, except about the time of quickening. They seem to arise from the sudden change of position of the uterus, emerging from its more close confinement within the bony parietes of the pelvis, and from the irritation communicated by the child's motion. They are commonly slight and transient, and leave no bad effects behind them.

DELIQUIA, which are occasioned by falls, frights, and passions of the mind, are of more serious consequence, and the shock is frequently fatal to the child.

THE complaints which occur in the early months require a variety of treatment in different circumstances. When symptoms of fulness appear in young women formerly healthy and accustomed to live well, indicated by pain or giddiness of the head, flushings in the face, and heat in the palms; or when the sickness is constant or excessive—venæsection, an open belly, with abstemious

ſtemious diet, and every other means to obviate plethoric diſpoſition, muſt be uſed. But in oppoſite circumſtances, where there is the appearance of nervous delicacy, along with ſymptoms of dyſpepſia and conſequent debility, bleeding muſt be avoided with the ſtricteſt care. Nouriſhing diet given in ſmall quantities, and often repeated, the moderate uſe of cordials, good air, cheerful ſociety, eaſy exerciſe, variation of ſcene, ſuited to the peculiar circumſtances of the patient, and, in a word, thoſe means adapted to ſooth or diminiſh ſenſibility and irritability of the ſyſtem, and keep up the general health, are the moſt proper.

SECTION II.

DISEASES OF ADVANCED PREGNANCY.

THE diſorders which attend the advanced months of geſtation, are more ſudden in their occurrence, more painful in their ſymptoms, and more dangerous in their conſequences, than thoſe of the early months.

The

The loss of the child, and a temporary weakness, from which the mother, under proper management, soon recovers, are the worst consequences to be dreaded from the latter: But, from the compression of the bulky uterus on the contiguous viscera, their important functions are impaired, the circulation in the vascular system and the nervous influence are materially interrupted, and the most fatal event is sometimes produced.

The disorders incident to advanced gestation chiefly are,—suppression or difficulty of passing urine, retroverted uterus, costiveness, piles, œdematous swellings, varices, colic, cramps, pains in the back or loins, cough, dispnœa, vomitings, strangury, or incontinence of urine, convulsions, &c.

ISCHURIA and FREQUENT MICTURITION. These symptoms are occasioned by the pressure of the uterus on the neck of the bladder, before the fundus uteri rises above the brim of the pelvis. The retention of a small quantity of urine at that time is a powerful stimulus to void it. If that is neglect-

ed, and the bladder becomes diſtended, painful iſchuria enſues. Women under ſuch circumſtances ſhould be cautioned to avoid crowded places, and every ſituation which expoſes them to diſagreeable reſtrictions. A ſlight degree of ſuppreſſion, if early attended to, will ſeldom prove troubleſome or hazardous. It only requires a conſtant attention to obey the dictates of Nature, when the call to evacuate the urine is urgent; to keep the belly regular; to lie down on a bed or ſofa from time to time, when pained or uneaſy; and carefully to guard againſt fatigue, and confinement in a crowded place, till the uterus be ſo much enlarged, as to be ſupported by reſting on the expanded bones of the ilia.

RETROVERTED UTERUS. As the gravid uterus enlarges it becomes too bulky to be longer confined within the bony cavity; but in conſequence of any extraordinary exertions, violent fatigue, obſtinate coſtiveneſs, or the diſtention of the bladder with urine, it ſometimes not only is prevented from

from emerging above the brim of the pelvis, but also has its fundus forced downwards, falling back into the inferior posterior part of the pelvis; the os tincæ being drawn up towards the pubes making the superior part, and the fundus forming the most depending part of the tumor.

This reflected state of the prolapsed gravid uterus is styled *retroversion;* and is readily known by the symptoms, and from the period of pregnancy in which it occurs.

It chiefly occurs between the middle of the third and the end of the fourth month of pregnancy. The symptoms are, an increase of those usually occasioned by painful distention of the bladder with urine, constant weight, and uterine pain and pressure, tenesmus and other symptoms sometimes resembling the severest throes of labour. A tumor may in that case be felt to the touch between the vagina and rectum, which occupies the whole inferior capacity of the pelvis, prevents the finger from passing into the vagina, and presses against the

perinæum and anus, like the child's head in time of labour.

In the beginning of the diſeaſe, the urine is voided with difficulty; in the progreſs, ſtools and urine are totally retained. As the bladder diſtends, it draws the cervix uteri up with it; the uterus, growing bigger and bigger, ſinks lower, ſpreads out beyond the inferior circumference of the pelvis, and occaſions conſtant ſtraining and preſſing. The throes at laſt become ſo violent, that the uterus ſeems ready to be protruded without the vulva. The inferior lateral openings of the pelvis yielding to the diſtended cauſe, as they do in real labour, the tumor becomes ſo bulky, as, in ſome inſtances, to elude the poſſibility of reduction*. Laceration of the coats of the bladder, inflammation communicating to the viſcera, delirium or convulſions, and fatal event ſoon enſue, if the means of relief are neglected or prove ineffectual.

The

* See Dr Hunter's Plates of the Gravid Uterus, Pl. xxvi. London Medical Obſervations and Inquiries, Vol. IV. Art. xxxvi.

The cure consists in restoring the uterus to its proper position, and guarding against the hazard of relapse.

Previous to attempting the reduction of the uterus, the counteracting obstacles must be removed. With this view, repeated venæsection may be necessary; fomentations, or the semicupium, should be used to diminish swelling and inflammation; the catheter should be passed to evacuate the urine; and the rectum should be washed out with repeated glysters.

The reduction of the uterine tumor should then be attempted, by placing the patient on her knees and arms, with her head reclined and properly supported, endeavouring, by every possible means, to restore the uterus to its proper position. The force employed should be gentle at first, pressing backwards and upwards in different directions (to force the fundus uteri above the brim of the pelvis), not by starts, but constantly and equally, gradually increasing the exertions of force, as far as

they can ſafely be carried, till the end in view be obtained.

After the reduction the patient muſt be confined moſtly to bed, and the diſtention of the bladder and rectum muſt be carefully prevented, till the uterus riſes completely above the brim of the pelvis, when ſhe will be ſecured from future danger. But if the obſtinacy of the diſeaſe ſhould render every effort ineffectual either to evacuate the urine or replace the uterus, it has been propoſed to puncture the bladder at the pubes; and if that ſhould fail to facilitate the reduction, to thruſt a trocar into the ſubſtance of the uterus to procure abortion; or to enlarge the pelvis by inciſion at the ſymphyſis pubis, in order to accompliſh the reduction of the uterus.—The firſt of theſe propoſals affords the only proſpect of ſaving the patient; for its ſucceſs has been proved, by experience, in a caſe detailed by Dr Richard Browne Cheſton *.

COSTIVENESS.

* See London Medical Communications, vol. 2. p. 6.

Costiveness. This symptom is a common attendant of pregnancy. The causes are, the pressure of the gravid uterus, a disordered state of the stomach, and sedentary life.

It may be obviated or prevented by attention to diet, and the occasional use of gentle laxatives; of these, ripe fruit, magnesia, cream of tartar, soluble tartar, lenitive electuary, ol. ricini, or an aloetic pill, when the patient is not subject to any hæmorrhoidal affection, or has been formerly accustomed to it, are the most proper.

But in cases of obstinate costiveness, to break down and remove indurated scybali, emollient glysters, occasionally rendered moderately stimulant with soap, or a small proportion of common salt, ought to be repeatedly exhibited.

Piles—are small tumors placed a little way within the rectum, or protruding like varicous swellings without the verge of the anus, attended with throbbing pain, heat, itching; frequently with fever and restlessness, and sometimes liable to frequent or

exceſſive hæmorrhagies. Their chief exciting cauſes are, coſtiveneſs, and venous plethora from geſtation.

The treatment ſhould be directed nearly on the ſame principles as ſimilar caſes from other cauſes, with the precautions which pregnancy ſuggeſt. Coſtiveneſs muſt be obviated by cooling laxatives; of which cream of tartar and flowers of ſulphur are the beſt. General or topical bleedings ſhould be uſed, to leſſen plethora or local inflammation; and fomentations and cataplaſms, emollient or ſaturine, applied, to diſperſe the ſwelling, or promote ſuppuration. For allaying the pain often attending piles when the inflammation is removed, an ointment compoſed of equal parts of powdered galls and axunge, has been much recommended. *Balſ. capivi* is alſo an excellent remedy in piles, and keeps the belly moderately open.

Oedæmatous Swellings of the *Legs*, and ſometimes extending to the thighs and labia, ariſe from the ſame cauſe with the preceding complaint, viz. venous plethora from the

the pressure of the uterus. They are merely symptomatic, and only attended with a temporary inconvenience; as almost in every instance, where the constitution is otherwise unimpaired, they subside immediately after delivery.

The best palliatives are—small bleedings and gentle purgatives, with a light spare diet, if the patient be full and plethoric; if otherwise, strengthening diet, the moderate use of cordials, an open belly, frequent rest on a bed or couch; and, in either case, easy exercise when she is able to bear it, and friction with a flesh brush, applied to the legs evening and morning, to promote the circulation and absorption of the stagnant fluids.

VARICOUS SWELLINGS are merely distentions of the coats of the veins from venous plethora, occasioned by pressure of the gravid uterus. They are generally confined to the legs or thighs, and seldom proceed so far as to burst and throw out their contents. When very large or painful, gentle evacuations may be necessary; and topical astringent

gent applications uſed, to remove local laxity; as compreſſes ſoaked in any ſtyptic liquor, retained by the application of a bandage. A moderate preſſure on the part by compreſs and bandage, when the accumulation is conſiderable, will, in moſt caſes, be ſufficient to remove any inconvenience occaſioned by the ſwelling, till delivery: ſoon after which, they generally diſappear, or are conſiderably leſſened.

PAINS in the BACK or LOINS, COLIC, CRAMP,—are occaſioned by the ſtretching of the uterus, or by its preſſure on the neighbouring parts, particularly on the diaphragm. They are moſt troubleſome in a firſt pregnancy, or when the diſtention of the abdomen is enormous.—Small bleedings, gentle laxatives, a light ſpare diet, and occaſional opiates, are the beſt palliatives.

If the patient be of a full habit, and where a diſpoſition to inflammatory complaints prevails, any violent fixed pain about the back or loins, along with fever, or in the abdominal viſcera exciting ſymptoms of *Colic*, is highly alarming and dangerous

gerous in advanced gestation where the pressure is great. The threatening event can only be prevented by repeated venæsection, and the antiphlogistic treatment.

CRAMPS are sometimes very troublesome towards the latter end of gestation. They are chiefly confined to the legs and thighs, more rarely they affect the belly, and are most troublesome during the night. Their exciting causes are, the stretching of the womb, or its continued pressure on one particular part.—When frequent or violent, and the habit is full or plethoric, bleeding is necessary. The sudden exposure of the body to cold, or change of posture, as getting out of bed and walking about, may be often sufficient to give a temporary relief; and opiates may be useful to lessen nervous irritability.

COUGH, DYSPNOEA, VOMITINGS, DIFFICULTY OR INCONTINENCY OF URINE.—The cause of these complaints in advanced gestation is sufficiently obvious. The former of these symptoms are chiefly to be alleviated by small bleedings, gentle laxatives,

light

light ſpare diet, and opiates. The patient ſhould be placed when in bed in an eaſy poſture, with her head and ſhoulders conſiderably raiſed, and the bed-room ſhould be as large and airy as poſſible. Bandages, adviſed by many when the uterus riſes very high, are dangerous expedients for altering its direction; and ſtricture in dreſs, with a view to hamper and confine the uterus, can never be employed with ſafety.

To prevent the conſequences of frequent micturition or incontinency of urine a ſuſpenſory and thick linen compreſs, or ſponge, ſhould be conſtantly worn, and occaſionally ſhifted as it becomes damp.

CONVULSIONS. The appearance of convulſions in pregnant women is frightful; the ſymptoms are alarming; and the event is always precarious, often fatal.

Headach, intolerably violent or intenſe pain or oppreſſion about the præcordia, are the moſt common preſaging ſymptoms.

At whatever term of geſtation, there is great danger; but in the advanced months, the

the disease is more desperate. The danger is also to be judged of by the violence of the symptoms, the duration and recurrence of the fits, the exciting cause and constitutional temperament of the patient, and her condition during their remission.

Increased irritability from pregnancy, probably predisposes to this complaint.

Uterine irritability communicated by sympathy to the encephalon, and pressure of the gravid uterus interrupting the circulation through the abdominal viscera, disturbing their functions, and changing the determination both of the circulating fluid and nervous energy, are perhaps the most ordinary exciting causes. They may also arise from inanition, in consequence of profuse hæmorrhagies, or other debilitating evacuations; or be occasioned by mechanical injury of the uterus, from violent bruises, wounds, &c. and by passions of the mind, and every other cause sufficient to bring on convulsions in the unimpregnated state.

Hysteric or nervous spasms are readily distinguished from convulsions. The former

mer are milder than the latter in their ſymptoms; and much leſs frightful in appearance, by the abſence of foamings and diſtortions. They have no ſenſible effect in bringing on labour; they are ſeldom followed with bad conſequences; and yield to the common treatment. Women of vigorous conſtitutions, rigid fibres, and plethoric habits, are more uſually the ſubjects of the latter: the delicate, the nervous, and irritable, of the former.

Convulſions, during pregnancy, may occur at three diſtinct periods, viz. in the early months, in the latter, and at the commencement of labour.

1. Thoſe which appear in early geſtation, chiefly happen to young women of a plethoric habit, and can only be obviated or palliated by a free uſe of the lancet, by gentle purging, cooling regimen, and low diet. After ſome evacuations in this way, if conſtant nauſeating ſickneſs indicate a diſordered ſtomach, a mild emetic may be of uſe; but it ſhould never be employed without previous blood-letting.

In

In opposite circumstances, a different treatment must be directed. Opiates, or castor and musk given internally, emollient glysters, warm fomentations applied to the legs, the semicupium, and every means to soothe nervous irritability and remove spasmodic stricture, will then prove the most effectual remedies. When it cannot be received into or retained in the stomach, opium, in large quantities, should be exhibited by way of glyster.

When the patient is totally insensible and comatose, stimulating purgative glysters should be given; and epispastic and stimulating cataplasms, in order to rouse her, should be applied to the legs and hams.

In the intervals of the paroxysms, or after they have ceased, the patient, when languid or much reduced, must be supported by nourishing diet and suitable cordials: and when she is no longer able to swallow nourishment, it must be supplied by way of glyster.

2. In the advanced months, the attacks are more sudden, the progress more rapid, and

and the event more fatal, than in early geſtation: therefore the moſt active and vigorous meaſures are neceſſary; for, like apoplexy, a fit or two then, in ſome inſtances, terminates the diſeaſe with the loſs of life. If any treatment can prevent the threatening cataſtrophe, immediate and copious venæſection, occaſionally repeated, may chiefly be relied on.

Other means for leſſening plethora, obviating the effects of violent agitation, and rendering the ſyſtem leſs irritable, muſt afterwards be employed, and the treatment in other reſpects ſhould be directed according to particular circumſtances.

3. Laſtly. When convulſions come on along with labour-pains, they muſt be palliated by ſome of the means already directed, till the delivery can be ſafely aſſiſted by art.

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SECTION III.

DISEASES WHICH REQUIRE PECULIAR TREATMENT WHEN THEY OCCUR DURING PREGNANCY.

BESIDES those hitherto enumerated as more immediately deriving their origin from pregnancy, other disorders sometimes occur which may then require some variety from the usual management. These are chiefly paralysis, nephritis and calculi, herniæ, dropsy, leucorrhœa, venereal complaints, fevers.

PARALYSIS is generally local, and chiefly confined to the lower extremities, or may be traced by the course of the nerves to depend on the pressure of the uterus. The treatment can only be directed with a view to palliate till delivery. Gentle exercise, moderate evacuations when the habit is full, under opposite circumstances, strengthening diet and regimen, with warm applications and friction, are the principal remedies.

NEPHRITES and CALCULI. The former must be palliated by venesection, diluent drinks, opiates.

If a calculus ſtick in the urethra, and the woman is near her time, it ſhould, if poſſible, be puſhed back into the bladder with the catheter: otherwiſe, when eaſily come at, the ſtone may be cut upon and extracted.

HERNIÆ. Some of theſe are cured by pregnancy; others continue during the whole term of geſtation. Bandages can ſeldom be uſed with ſafety in the pregnant ſtate; at leaſt tight preſſure by the common umbilical bandage muſt be avoided. In time of labour, herniæ muſt be carefully ſupported with the hand during a pain; after delivery, future inflammation and its conſequences muſt be guarded againſt; the uſual bandage muſt again be applied, when the patient is ſufficiently recovered to be able to ſtay any time out of bed after delivery.

The HYDROPS ASCITES—in pregnant women ſometimes alſo occurs; and will, during that ſtate, only admit of palliation. The belly muſt be kept open; the evacuation of urine, as much as poſſible, muſt be promoted by cream of tartar, dried ſquills, and the like; and gentle exerciſe muſt be

uſed.

used. If, however, the abdomen be much distended, the respiration difficult, and other symptoms urgent, the water may be safely drawn off by the operation of the paracentesis.

The Fluor Albus or Leucorrhoea —is sometimes cured, sometimes increased, by gestation. Except the little variety which an attention to the gravid state requires, the cure is the same as at other times.

Gonorrhoea and Lues Venerea.— The cure of the former is to be conducted in pretty much the usual manner; that is, by keeping the parts clean by frequent bathing, by drinking freely of diluent drinks, by an open belly and cooling diet. If complicated with ulcers and chancres within the labia, or any where about the vulva, the prudent use of mercury becomes requisite: It may either be given internally, or rubbed on the skin by way of unction.

In the confirmed lues, we can only, in general, propose to stop the progress of the disease, or palliate the severity of the symptoms. But, in early pregnancy, when the constitution is good, and the season favour-

able, if a mercurial courſe be regulated with prudence, both mother and child may obtain a radical cure. The proper time for entering on ſuch a courſe is between the third and ſixth months. When a radical cure is attempted, the ſafeſt method of adminiſtering mercury ſeems to be in the way of unction: As a palliative, the ſolution of corroſive ſublimate is the moſt powerful preparation. To prevent diarrhœa and colic complaints, opiates ſhould always be conjoined.

Fevers.—Women are leſs ſubject to febrile diſorders during pregnancy than at other times. There is, however, an univerſal heat all over the body; which with ſome is a ſymptom of conception, and with others continues during the whole term, that hardly deſerves that name.

The limits of the preſent work do not admit of our entering into any diſquiſition on the nature of fever in general, or on the treatment of the variety of ſpecies. All great evacuations muſt then be avoided, and alſo whatever might excite any violent ſhock

to

to endanger abortion and its conſequences. The treatment muſt in other reſpects be directed on common principles, attending to the management neceſſary to be obſerved in circumſtances ſo peculiarly critical.

SECTION IV.

OF FLOODINGS AND ABORTION.

ABORTION, and its common attendant FLOODING, are neither confined to the early nor latter months, but happen indiſcriminately at every period of geſtation. The one is a frequent conſequence of the other, and the event is often hazardous. In the earlier months, a conſiderable diſcharge of blood frequently precedes the expulſion of the ovum; and, in the latter ſtages, the effuſion is ſometimes ſo exceſſive as to endanger the mother's life.

Their more frequent terms of occurrence are in early geſtation, the ſecond and third; in advanced pregnancy, the fifth and ſeventh months.

 I. FLOODING,

I. Flooding.—The *Mænorrhagia Gravidarum* may be defined, "A vague or irregular appearance of blood from the uterus, during pregnancy, ſubject to no periodical returns, but liable to recur from very ſlight occaſional cauſes."

The immediate cauſe of flooding, both in the early and latter months, is a total or partial ſeparation of the ovum.

In the early months the exciting cauſes are,

a. Plethora or an increaſed determination to the uterine veſſels.

b. Weakneſs of thoſe veſſels.

c. Mechanical injuries.

Before the fifth month of geſtation, flooding, however alarming it may appear to ignorant obſervers, can never prove dangerous, unleſs under the moſt improper management; becauſe the diameters of the bleeding veſſels are ſo ſmall that they can be made to contract completely by means of cold applications.

The mode of treatment, in ſuch caſes, muſt be regulated by circumſtances. If evident

evident marks of plethora appear, venesection should be ordered, rest and a cooling regimen enjoined, and the neutral salts, in small doses, frequently repeated, prescribed; the great object in view being to moderate the impetus of the heart and arteries.

Where the separation of the ovum seems to have been induced by debility of the vessels or by accident, and whenever the discharge is profuse, whatever have been the exciting cause, topical applications are to be chiefly depended upon. Cloths, therefore, soaked in cold water should be applied to the lumber region, to the pubes, and to the external parts; or a bladder, filled with a solution of sal-ammoniac in cold water, may be applied to the lower part of the belly. Should these means fail, a quantity of lint, soaked in any astringent fluid, ought to be stuffed into the vagina—a remedy much used by French practitioners, and certainly efficacious at the period of gestation alluded to.

By thus keeping the patient quiet and cool, by giving internally cooling drinks

and opiates, and by the application of cold to the organ affected, the hæmorrhagy may be restrained, though threatening and alarming; and the woman, after several attacks, may, under proper management, be enabled to carry the child to the full term of delivery.

Debility and relaxation must afterwards be removed, by nourishing diet and tonic remedies; and, in relaxed habits, the hazard of relapse guarded against by the use of the Peruvian bark, moderate exercise, and the other remedies usually employed after cases of profuse menorrhagia. In full habits, or where there is an evident disposition to plethora, gentle evacuations, cooling regimen, and an abstemious spare diet, are the best prophylactics.

In the latter end of pregnancy, when the hæmorrhagy proceeds from the separation of a portion of the cake which adhered at the cervix, over the orificium uteri, the deluge is sometimes so impetuous as to kill the mother very suddenly. The only method, then, in our power, for preserving both

both the parent and child, is by an *expeditious delivery*; I mean expeditious with respect to the time it is attempted, for the operation of delivery should be slowly performed.

In all cases of flooding, when any portion of the pulpy substance of the placenta can be felt by the finger to present before the child, delivery should be performed as soon as the orifice of the womb is sufficiently relaxed to admit of the introduction of the hand, after gently stretching*: and if the repetition of floodings without pain be frequent, or the discharge be so profuse as to bring on faintings, it may be necessary to deliver, even though there should be no sensible dilatation of the uterine orifice, and though no part of the placenta can be felt to the touch; for, if the woman is previously much exhausted, she cannot be saved but by delivery.

II. Abortion.—Abortion is "The premature expulsion of the fœtus." It comprehends

* See a valuable essay on this subject by Mr Rigby.

hends every period before the evolution of its ſyſtem be ſufficiently complete to enable the child to exiſt after the connection with the parent is diſſolved.

Abortion is commonly preceded by ſome of the following ſymptoms: Flooding, pains in the back or belly, uterine bearing-down pains with regular intermiſſions, and the diſcharge of a watery fluid.

If, along with flooding, any portion of a vaſcular ſkinny ſubſtance, which is the membrana decidua, ſhould be diſcharged, abortion will in general enſue. None of the other ſymptoms are infallible; even the evacuation of a watery fluid is not neceſſarily followed with delivery, ſince it may proceed from a collection on the outſide of the ovum, between the lamellæ of the membranes. In the early months exceſſive floodings ſometimes occur; and yet, by proper management, the woman is often enabled to retain the child.

There is leſs fear of abortion while the blood evacuated is pure and without clots, unattended with uterine pain and preſſure. But, in forming a judgment, the conſtitu-

tion,

tion, occasional cause, and term of gestation, must be regarded.

Abortions happen more frequently from the beginning of the second to the end of the third month, than at any other period.

The immediate cause of abortion is the same with that of real labour.

The predisponent causes of abortion are,

1. Diseases of the general system, as debility, irritability, and plethora.
2. Diseases of the uterus, as rigidity, weakness, irritability, and habit of miscarrying.

The exciting causes exist either in the mother or child.

In the former they consist of all acute diseases, violent passions of the mind, mechanical injuries, excessive corporeal agitation, and every thing capable of exciting the premature action of the uterus.

In the latter they consist of every circumstance which can injure any part of the ovum, or destroy the life of the embryo.

The size of the abortive ovum in early gestation is as follows Six weeks after conception, its bulk is nearly equal to a pigeon's

geon's egg; in eight weeks, to that of a hen; and in twelve to that of a goose.

Where there is reason to dread abortion, all probable means ought to be employed to relieve painful symptoms by rest and opiates, to check hæmorrhagy in the way already directed, and to obviate exciting causes as much as possible; and the woman should be encouraged to hope as long as there are grounds for it.

As abortion, in many instances, is preceded by no alarming symptom, till a discharge of watery fluid, or an excessive flooding with clots and portions of the decidua, announce the approaching event; either to remove immediate symptoms, or prevent the accident that is dreaded, often baffles our boasted skill; for the circulation in the ovum perhaps had ceased a considerable time previous to any threatening symptom of its expulsion.

Little, therefore, can or ought to be done by way of treatment, besides obviating plethora, advising rest of body and tranquillity of mind, and guarding against every cause of irritation. Though the mother may suffer

fer a conſiderable ſhock from miſcarriage, and it may be ſome time before her conſtitution be ſufficiently reſtored for any future fortunate pregnancy, women are rarely known to ſuffer fatally, except from miſmanagement, in the early months. Any manual operation to aſſiſt delivery, is ſeldom neceſſary at an earlier period than the ſixth month of geſtation, unleſs the mother's life ſhould be in danger from flooding. When this happens, the bag may be broken by thruſting the finger againſt it in time of pain, or endeavouring to aſſiſt its expulſion when within reach of the finger; but otherwiſe the delivery ſhould be *wholly* truſted to Nature. It is even hazardous to deſtroy the ſtructure of the ovum in the early months: for when it breaks, the ſmall fœtus is firſt expelled; and the bag or placenta may be afterwards retained for a week or more, during which time the flooding often continues to be exceſſive; whereas, if the conception comes off entire, the effuſion generally ceaſes immediately.

From long retention, the placenta, being unconnected with the womb, is liable to become

become putrid: it is then expelled in different portions; and inflammation, excoriation, or gangrene of the uterus and vagina sometimes ensue. In these circumstances there is a necessity for keeping the parts clean, by frequent bathing, or by injections thrown into the vagina; and bark, with elixir of vitriol, should be given freely. Gently stimulating glysters, to promote the contraction of the uterus, in cases of retention of the placenta, where there is no great flooding, are often useful.

As women who have once aborted are liable to a repetition of that accident from a similar or very trifling occasional cause, it ought to be guarded against by every possible means. With this view, the management during pregnancy should be properly regulated.

SECTION V.

MANAGEMENT DURING PREGNANCY.

The regulations during pregnancy may be referred to the following rules.

1. The strictest temperance and regularity

rity in diet, ſleeping, exerciſe, and amuſement, are neceſſary to be obſerved by thoſe who have reaſon to dread abortions.

2. Overheating, irregular paſſions, and coſtiveneſs, ſhould be conſtantly guarded againſt.

3. The hazard of ſhocks, from falls in walking or riding, from bruiſes in crowds, or frights from buſtle, ſhould be avoided with the utmoſt circumſpection.

4. The dreſs of pregnant women ought to be looſe and eaſy. Tight lacing is injurious at every period of geſtation. In the early months, by preventing the uterus from riſing out of the pelvis, it endangers miſcarriage; and it is ſtill more hazardous in the advanced ſtages. Jumps, without knots, buckles, or whale-bone, ſecured with ſtraps of broad tape or ribbon, ſhould be had recourſe to ſoon after conception, and worn conſtantly.

5. Pregnant women require free, pure air; their inclinations ſhould be gratified by every reaſonable indulgence; and their ſpirits kept up by cheerful company and

variety

variety of objects, that their minds may be always composed and happy.

6. If complaints occur, they should be treated nearly as at other times, with the precautions formerly suggested of avoiding all great evacuations and violent exertions. Drastic purges, stimulating glysters, emetics towards the term of quickening or any other critical period, strong diaphoretics or diuretics, shocks from electricity or the cold bath to those who have not been accustomed to them, the hazard of accidents from riding or sailing, and of the consequences of irritation from the action of blisters or the absorption of cantharides in particular circumstances and constitutions, ought to be carefully guarded against. In the early months, abortions might be readily occasioned from such hazardous expedients; and in the latter, the most alarming and dangerous floodings.

7. Lastly, with a view to prevent abortion in cases of habitual predisposition, in plethoric habits, or in those of an opposite temperament, occasional causes must be obviated, and the particular fault in the constitution corrected.

PART III.

L A B O U R S.

INTRODUCTION.

§ 1. GENERAL OBSERVATIONS.

WHEN the uterus can admit of no greater diſtention, without a material, or probably fatal, diſorder from its impeding the ſeveral functions, labour enſues.

At this period, the organization of the fœtus is ſufficiently evolved to enable it to continue its exiſtence; and as it derives no injury from a longer delay, ſo it can ſurvive a ſlight acceleration of this important change.

The period of geſtation varies in the ſeveral claſſes of different animals. The mare, the cow, the ewe, and the goat, are reſtric-

 ted,

ted, each within its proper limits. In the human ſpecies, nine kalender months ſeem neceſſary for the perfection of the fœtus; that is, nearly 39 weeks, or 273 days from conception. The term does not, however, appear to be ſo arbitrarily eſtabliſhed, but that Nature may tranſgreſs her uſual laws; and, as many circumſtances frequently concur to anticipate delivery, it certainly may in ſome inſtances be protracted. Individuals of the ſame claſs of quadrupeds, it is well known, vary in their periods of pregnancy. May we not, therefore, from analogy, reaſonably infer, that women ſometimes exceed the more ordinary period? In ſeveral well atteſted caſes, the birth appears to have been protracted ſome weeks beyond the common term of delivery. If the character of the woman be unexceptionable, a favourable report may be given for the mother, though the child ſhould not be produced till nearly ten kalender months after the abſence or ſudden death of her huſband.

LABOUR is "an effort of nature to expel

pel the contents of the gravid uterus." It is chiefly accomplished by the spasmodic contraction of the uterus itself. The diaphragm, muscles of the abdomen, and others concerned in respiration, and all the muscles of the body, are called in as auxiliary powers. These efforts alternate with intervals of ease; and the exertions, or paroxysms, continue till the child is propelled, and the uterus completely emptied of its contents.

The *final cause* of labour is, the birth of the child.

Spurious pains frequently occur towards the latter end of gestation. Their causes are a slight degree of irritation of the uterus from excessive stretching; spasmodic affections of the abdominal viscera; or any stimulus communicated from the intestinal canal, as colic from costiveness and other causes. They often nearly resemble labour, and ought to be carefully distinguished from it.

They are more vague and irregular, both in frequency and force, than those arising

from genuine labour; they do not produce any ſenſible change on the orificium uteri; they are not attended with any conſiderable diſcharge of the ropy mucus, which ſometimes precedes, and always accompanies, the firſt ſtage of real labour. They are generally confined to the lumbar region, or to the belly, without ſtriking down the thighs; they are commonly moſt troubleſome towards evening, occaſion inquietude and reſtleſſneſs in the night, and abate in the morning. They are further known to be ſpurious, by the relief procured from glyſters and opiates.

Genuine labour is known to approach from the circumſtances which uſually precede it: the progreſs is marked by the duration, force, and frequency of the pains; by their effects on the general ſyſtem; but more particularly by the dilatation of the uterine orifice, and protruſion of the water and child.

The *ſymptoms of approaching labour* are, the ſubſiding of the abdominal tumor at the ſuperior part; hence, at firſt, a relief from

from weight, preſſure, and uneaſineſs formerly felt; afterwards a diſcharge of ropy mucus from the vagina, ſometimes tinged or ſtreaked with blood, commonly ſtyled the *ſhews*; then, ſlight pains of the belly or loins, frequent micturition, teneſmus, ſometimes colic or diarrhœa, extreme reſtleſſneſs, alternate rigours, and hot fits.

The throes of labour uſually commence with pain in the region of the loins, which ſpread round forwards and downwards, and again extend from the belly to the pubes, ſhooting down the thighs. At firſt they are vague, more ſlight and tranſitory; but gradually increaſe in force, and recur at more regular intervals.

Sickneſs of the ſtomach, retching, and vomiting, alternate rigours and hot fits, in ſome inſtances accompany the earlieſt ſymptoms of labour; in others, horripilatio occurs in the progreſs, and ſeems then to be occaſioned by the preſſure of the head of the fœtus againſt the irritable uterine orifice.

Pyrexia, in young plethoric women, is a frequent attendant of labour; for, with increaſed pain, the face becomes fluſhed, the pulſe full, ſtrong, and accelerated, along with dry parched mouth and fauces, and the other ſymptoms of fever, ſtyled by authors *febris parturiens.*—Iſchuria, or ſuppreſſion of urine, and ſometimes an involuntary diſcharge of fæces, enſue.

The *progreſs of labour* generally proceeds in the following manner:

In conſequence of the great diſcharge of lubricating moiſture, the genital parts are firſt relaxed, and then gradually begin to dilate. The membranes alſo gradually ſeparate from the internal ſurface of the uterus; and, by its ſpaſmodic contractions, they with the contained water are protruded in form of a ſoft, yielding bag, before the preſenting part of the child. In the abſence of the pain, the waters retreat; the membranous bag is relaxed, or flaccid; and the child, if within reach, can be diſtinctly felt through it. When the pain recurs, the membranes become tenſe and turgid;

ſpread

ſpread out more and more; and advancing lower and lower as the pains increaſe in force and frequency, they gently and ſafely ſtretch and dilate the paſſages preparatoryto delivery, in a manner which no human artifice can poſſibly imitate. When that important end is accompliſhed, the ſlender bag, yielding to the propelling force, gives way, and the contained fluid is evacuated.

In a natural eaſy labour, the progreſs of the head of the fœtus through the pelvis correſponds with the protruſion of the membranes and dilatation of the ſoft parts. The head advances in a mechanical manner, its large axis being applied to that of the pelvis. When the vertex is nearly arrived at the lower circumference of the bony cavity, the membranes give way; ſoon after which the pains are renewed with increaſed force. The vertex advances through the axis of the vagina; the occiput gradually emerges from under the arch of the pubes; and the ſoft parts at the bottom of the pelvis beginning to be protruded in form of a tumor,

the os externum is gradually dilated. As the occiput riſes from below the pubes, the face is turned towards the concavity of the ſacrum: the forehead preſſes againſt the moveable coccyx; the vertex now protruding without the os externum, and the ſtimulating exertions becoming ſo exceſſive as to throw the whole frame into the moſt violent agitation, the os externum is forced open, and the head of the child propelled. After ſome interval of eaſe, the pain, in a more moderate degree, recurs; and continues till the child is completely excluded, the ſhoulders making nearly the ſame mechanical turns with the head.

When the woman has ſomewhat recovered the ſhock, the uterus again renews its contractions: and, by a more gentle and moderate exertion of the ſame powers by which the membranes were ſeparated and protruded and the child was propelled, the placenta is detached from its adheſion to the womb, forced downwards to the orifice, and expelled.

This

This is the manner and progreſs of natural eaſy labour. But a variety of circumſtances frequently concur to diſappoint our hopes, and render the birth tedious and painful. The original poſition of the fœtus in *utero*; the bulk, ſhape, and ſolidity of the head; the age, conſtitution, and previous condition, as well as preſent health and management of the patient; the action of the uterus itſelf, conſidered as a hollow muſcle; the rigidity of the os tincæ; the conſtruction and capacity of the pelvis; the texture of the membranes; the tightneſs or conſtriction of the vagina; the reſiſtance of the os externum, &c. occaſion an aſtoniſhing variety in the degree of pain, the progreſs or duration, and manner of termination of labour. Practitioners ſhould therefore be cautious of giving an opinion reſpecting the time of delivery, at leaſt till the progreſs be conſiderably advanced.

A judgment of the duration and event of labour is chiefly to be derived from the force, continuance, and recurrence of pains: from the reſiſtance of the os tincæ, or the contrary;

contrary; from the period when the membranous bag is ruptured; from the poſition of the child's head, and relative proportions that obtain between it and the pelvis.

Young women, apparently well proportioned, of a lax fibre and healthy conſtitution, may be preſumed to have eaſy, favourable labours. We may expect the delivery to be tolerably eaſy and expeditious, when the pains come on regularly; when the child preſents properly; when the membranes begin early to form a bag, and protrude without the os tincæ; when that part is thin, ſoft, and yielding, and is felt by the touch to dilate ſenſibly by the force of the pains; when the head of the child can be felt through the membranes during the remiſſion of pain, advancing progreſſively through the pelvis, preceded by the amnion tumor; when, on the rupture of the membranes, it is found ſituated in the lower part of the cavity of the pelvis, the orificium uteri being quite dilated.

But, even under theſe circumſtances, the progreſs of labour is often unexpectedly interrupted

terrupted by the remiſſion or diminiſhed force of pains for a conſiderable interval; by the conſtriction of the vagina after the os tincæ is completely dilated; or, by the rigidity of the external parts, though no obſtacle ſhould occur from any defect in the conſtruction of the pelvis.

In ſome inſtances, the progreſs is retarded by the early rupture of the membranes, ſlow dilatation of the os tincæ, feebleneſs of the throes, and a variety of other cauſes. Nothing can therefore be more difficult, than to aſcertain, or gueſs at, the time neceſſary to accompliſh the wiſhed-for event. The more ordinary limits of a natural eaſy labour are from ſix to twelve hours; it is, however, ſometimes completed within two hours, and ſometimes requires ſeveral days. But the firſt labour is generally, from obvious cauſes, the moſt painful and tedious.

§ 2. DIVISION OF LABOURS.

THE ancients, as far as can be collected from their writings, divided labours into two

two kinds; Natural and Preternatural. The firſt included head, or, according to ſome, head and breech, preſentations; and all others were implied in the latter. There is however ſome reaſon to believe, that dead children formed a third diviſion.

In different authors we find different arrangements, and the claſſification is ſtill arbitrary. That of DR SMELLIE appears to be little liable to exception. He refers all labours to three general claſſes: 1*ſt*, Natural; 2*dly*, Laborious; and, 3*dly*, Preternatural. He calls thoſe caſes *natural*, where the head preſents, and the child is expelled by the natural pains; *laborious*, when the head preſents, but the birth is uncommonly protracted, or requires the interpoſition of art; and *preternatural*, when any other part but the head firſt preſents, or when the feet are delivered before the head.

A great variety of diviſions and ſubdiviſions, however, ſtill prevails among modern practitioners; and different explanations have been given by different authors to the ſame terms. Such indefinite diſtinctions ſerve

ferve to involve the fubject in obfcurity; and to miflead and embarrafs inexperienced practitioners.

All diftinctions ought to be reftricted to thofe cafes merely which require a different mode of practice. With this view, labours may with propriety be referred to Dr Smellie's general divifion of three claffes; Natural, Laborious, and Preternatural; or Dr Denman's arrangement may be adopted, by which preternatural labours include only cafes where the fœtus prefents by other parts than the head; and labours complicated with flooding, convulfions, prolapfus of the cord, &c. are comprehended under a fourth clafs, called complex.

§ 3. MANAGEMENT OF LABOURS.

In all labours, three diftinct periods, or ftages, may be marked.

1. The dilatation of the orificium uteri.
2. The delivery of the child.
3. The feparation and expulfion of the placenta and fecundines.

Of

Of theſe the firſt is by much the moſt tedious, and the management of the patient during it is nearly the ſame in all labours: for, whatever time may be neceſſary to accompliſh it, this firſt ſtage ſhould, in almoſt every inſtance, be truſted to Nature; dangerous floodings (very rarely local defects in the ſoft parts) only excepted.

The third ſtage ſeldom requires much aſſiſtance from art.

In the ſecond ſtage chiefly, a variety of management in different circumſtances becomes neceſſary.

We ſhall firſt give a few directions for the treatment of Natural Labour in its three ſeveral ſtages; and then conciſely direct the variety of management in the particular Caſes of the other Claſſes.

CHAP.

THE TANJORE MAHARAJ ... L. *

CHAP. I.

NATURAL LABOUR.

LABOUR is said to be natural when the head of the child presents, when the contractions of the uterus alone are sufficient to propel the infant, and when the patient is safely delivered within twenty-four hours from the commencement of real labour.

Little else is required in the treatment of this species of labour, than to obviate with care every circumstance which might prove an obstacle to the operations of Nature. To prevent confusion in our discussions, it is necessary to direct, under separate heads, the management adapted to the several stages.

SECTION I.

FIRST STAGE OF NATURAL LABOUR.

ON the commencement of labour, certain preparations for the delivery ought to be made.

made. Thus a proper bed-chamber for the patient ſhould be choſen; the bed ſhould be ſo arranged as to be defended from moiſture, and the dreſs of the woman adapted to the operation ſhe is to undergo.

The bed-chamber ſhould be well aired, having a lofty ceiling, and admitting the bed to be ſo placed as to be equally diſtant from a confined and an expoſed ſituation. It ſhould be rendered perfectly clean in every reſpect.

The bed muſt be ſo made as to be commodious for the patient, and at the ſame time defended from moiſture, and fitted to allow the ſuperfluous clothes to be eaſily removed.

With the dreſs of the patient a practitioner has ſeldom any concern; but, when conſulted on this ſubject, he ought to recommend ſuch dreſs as is ſuited to the ſtate in which the patient expects to be, and to the climate and ſeaſon.

As the contractions of the uterus appear not a little influenced by paſſions of the mind, particularly the depreſſing paſſions,

and

and as all women feel an involuntary despondency at the beginning of labour, it is an object of much importance to endeavour to inspire confidence and hope in the patient.

Besides the ordinary means by which this purpose may be accomplished, particular care is necessary not to offend her delicacy by any professional interference, till the pains be strong and frequent, and till she herself be convinced that assistance is necessary. Before that time she should be permitted to walk about the room, or even the house, and to amuse herself according to her fancy.

When the practitioner has satisfied himself that matters are in a favourable train, there is no further occasion for his interference until the rupture of the membranes, when he should again be assured that there is nothing uncommon.

SECTION II.

SECOND STAGE.

AFTER the complete dilatation of the os uteri, the head of the infant, if not retarded by the membranes, is forced by the action of the uterus into the cavity of the pelvis, and at laſt is preſſed againſt the perinæum. During this proceſs, nothing more than the obvious attentions is required of the practitioner, except taking care that the patient be in bed on her left ſide, and that he be never at any diſtance, as the progreſs of the child is ſometimes exceedingly rapid.

When the head of the infant is forced againſt the external parts, what is termed the perineal tumor is formed, and the patient ſuffers much uneaſineſs by the perinæum being protruded with violence during every labour throe.

Experience has proved, that the uneaſineſs from this cauſe is conſiderably alleviated by gently preſſing the protruded part, with

with the palm of the hand, during every pain; and reason confirms the propriety of the practice.—Thus the head is expelled through the orificium externum, merely in consequence of the resistance opposed by the perinæum, &c. for that orifice is not in the direction of the axis of the pelvis, which the head would necessarily follow were there no resistance.

Practitioners, however, ought to be cautioned against making too violent pressure on the perinæum, as inflammation, with all its consequences, might be the effect.

After the head is delivered, there is seldom any danger: the shoulders accommodate themselves to the passage; and the birth may then be safely facilitated by the hands of the operator, if any assistance should happen to be necessary. The patient, however, should be allowed to rest for a minute or two after the child's head has been excluded, and the shoulders should not be forcibly pulled out, nor the child's body suddenly extracted.

The child should be immediately remo-

ved, as far as the cord will permit; if it is twiſted about the neck, body, or limbs, it muſt be diſengaged: and, after the child has ſhown ſigns of life, the cord muſt be tied. If the child has ſuffered from the compreſſion of the head, the ſtring may be ſafely ſuffered to bleed a little; or, if it appears to have been lately dead, the uſual means, for its recovery, ſhould be employed, either before or after it is ſeparated from the mother, as circumſtances ſhall direct.

Certain ſymptoms, as lowneſs, ſickneſs, ſhiverings, cramps in the lower extremities, &c. occur ſometimes during the firſt and ſecond ſtages, and being of temporary duration, require no other than palliative treatment.

SECTION III.

THIRD STAGE OF LABOUR.

THE ſecundines are ſeparated and thrown off by the ſame powers which had expelled the child, viz. the contractions of the uterus.

rus. These, however, do not, in general, act till some little time after the expulsion of the infant, in consequence of the fatigue which the woman undergoes during that operation.

The approach of the expulsion of the placenta is commonly announced by the discharge of some clotted blood, and by a slight degree of uterine nisus, called by the women *grinding* or *griping pains*.

The diminished bulk, and shifting of the abdominal tumor, which may be felt by the application of the hand externally, afford the best means of information *when* to attempt assisting the expulsion of the secundines; and, in general, enable us to judge whether any other child be retained *in utero*.

The cord must be twisted round the fingers of the right hand, so that a firm hold be obtained; two fingers and the thumb of the left hand should also be applied, to grasp the cord within the vagina. The advantage of a pain, when it occurs, should always be taken. The cord must be pulled

from ſide to ſide, and backwards towards the perinæum, endeavouring to drag in ſuch a direction as to bring the central part of the cake through the axis of the uterus and pelvis, and deſiring the woman to employ her own exertions moderately by bringing a deep inſpiration and bearing down gently; but, violent efforts of coughing, retching, ſneezing, or ſtraining, ſhould be carefully avoided, leſt dangerous floodings or deliquia might follow. It is known to advance, by the lengthening of the cord, and the ſtraining of the woman. When the bulky part of the maſs arrives at the os tincæ, the inverted cake, preſſing againſt the orifice in a globular form, ſometimes gives conſiderable reſiſtance. This obſtacle may be removed, either by paſſing up two fingers of the right hand, guided by the cord, to bring down the edge; or by waiting a few minutes, then pulling gently at the cord with the left hand, and preſſing on the ſubſtance of the cake with the fingers of the right, higher and higher till the edge can be brought down, which muſt be

graſped

grasped firmly, the funis being still extended with the other hand. The whole substance of the cake, with the membranes, being at last entirely disengaged, are to be gradually extracted, put into a bason, and removed.

But, if the placenta does not advance when the cord is fully extended, and the woman suffers considerable pain, the operator must immediately desist; lest, by carrying the attempt further, floodings might be occasioned, the cord be ruptured, or the uterus inverted. A soft warm cloth should then be applied to the os externum, and the patient allowed to rest for five minutes. If it does not yet advance, ten or fifteen minutes more should be waited for; and, in the interval, a moderate degree of pressure on the abdomen, in different directions, may promote the contraction of the uterus, and assist the separation. By gradually proceeding in this manner, and patiently waiting for the contraction of the uterus, the placenta will be protruded so low, that the centre can be felt, the edge

brought down, and the extraction ſafely accompliſhed.

SECTION IV.

DEVIATIONS FROM NATURE IN THE THIRD STAGE OF LABOURS.

In by far the greateſt number of caſes the placenta is diſengaged and expelled within an hour after the birth of the child; but ſometimes it is retained for a much longer period if the interference of art be not interpoſed.

The cauſes of its retention in utero are, atony of the uterus, irregularity of action of that organ, and diſeaſed ſtate of the placenta itſelf.

If no uterine pains occur for ſome time after the expulſion of the child, and if the cord be not lengthened, the firſt of theſe cauſes may be ſuſpected.

It is beſt obviated by recruiting the ſtrength by ſome gentle cordial, rubbing the abdomen with the hand, or applying heat

heat to that part, and pulling, from time to time, cautiously, by the cord.

The second cause is indicated by frequent violent action of the uterus, and may be ascertained by actual examination.

It has been asserted, that it might perhaps be safe practice to delay manual assistance even for a day or two, as there is every probability that during that time the cake shall be thrown off; yet, as such a delay might be sometimes productive of the most serious mischief, prudence suggests that it is inadmissible.

The best practice, therefore, is to give a large opiate, as forty or fifty drops of tinct. opii. and when the patient begins to grow drowsy to introduce the hand, and to overcome gently and gradually, though steadily, the constriction of the uterus. The cake will be probably found disengaged, and at any rate is to be firmly grasped in the hand and completely removed.

Diseased state of the placenta, the third cause

cauſe of retention, conſiſts of an induration of that ſubſtance, together with ſo ſtrong an adheſion to the uterus, that, in ſome caſes, it is impoſſible to ſeparate the one from the other, without laceration, even after death. This induration proceeds from an approach towards oſſification; and, indeed, ſometimes oſſified points are obſerved throughout the ſubſtance of the cake *.

Of all the cauſes of retention, this is the moſt difficult and dangerous. The caſe is intricate and perplexing. If the placenta remains, and nature fails to expel it, the woman generally dies from uterine inflammation and gangrene. She is often alſo the unhappy victim of the unſucceſsful attempt of the operator: for the uterus has been torn by the officious or unſkilful efforts of the practitioner; or mortal floodings, inflammation, or gangrene have enſued.

If

* Some obſervations on this ſubject are detailed, p. 77. in Select Caſes of Midwifery, extracted from the records of the Edinburgh General Lying-in Hoſpital, with remarks by James Hamilton, junior, M. D.

If, in these circumstances, we should wait for the natural expulsion, the woman may be quickly destroyed by flooding, from partial separation. If we attempt to force a separation of the adhesion, by tearing the placenta from the uterus with the fingers, while that organ is in a state of atony, a fatal deluge from the destruction of vascular substance may ensue before the hand could be withdrawn from the uterus.

The best and safest practice, in these alarming cases, is to insinuate the hand with the utmost caution and tenderness; attentively examine the cake, by feeling every part of its substance; carefully avoid tearing by force at that place where the diseased hardness is; separate cautiously that portion which is loose and soft, and which yields to gentle efforts; the rest must be left to nature, to be expelled with the cleansings, or destroyed and discharged by means of suppuration.

Upon the whole, it is equally hazardous to precipitate the expulsion of the placenta, or to trust implicitly to the

powers

powers of nature. From raſh or violent attempts to extract the cake, the moſt ſhocking accidents, as inverſion of the uterus and mortal hæmorrhagy, have frequently happened. And, on the other hand, the retention of the ſecundines, beyond the period of twenty-four hours, is moſt generally productive of malignant or hective fever, or of fatal flooding, ſeveral inſtances of which I have met with in practice*.

The extremes, therefore, of raſh unneceſſary interference, and of timid procraſtination, in affording aſſiſtance ,ſhould be equally guarded againſt, and every practitioner ought to lay it down as a general rule, never to leave the patient until the placenta be diſengaged, or, at leaſt, until ſo much of it be extracted as is conſiſtent with ſafety.

CHAP.

* See Mr White's valuable treatiſe, particularly caſes, 11. 12. 13. 14. and 15. and Dr Kirkland's treatiſe on Child-bed Fevers, p. 158 and 164.

CHAP. II.

LABORIOUS LABOURS.

EVERY caſe where, although the head of the child preſents, the delivery is not terminated within twenty-four hours, from commencement of real labour, may be ſtyled laborious.

Under this title, three orders of labours are comprehended, viz.

I. Thoſe where, although the proceſs of delivery be protracted beyond the ordinary period, the efforts of nature eventually expel the child.

II. Where the interpoſition of art is required to accompliſh the delivery, but where ſuch means may be employed as ſhall injure neither mother nor child; and

III. Where it is impoſſible to extract the infant

infant through the natural paſſages without diminiſhing its bulk.

The cauſes of laborious labour are, diminution of the propelling powers, increaſe of the reſiſting ones, or a combination of both. Theſe are occaſioned by ſome fault of the mother or child, or both.

SECTION I.

FIRST ORDER OF LABORIOUS LABOURS.

THIS order correſponds with what was ſtyled, in the former editions of this work, lingering labour: the preſent arrangement we have adopted at the ſuggeſtion of Dr Oſborn *. It is deſigned to render the ſtudy of this ſubject leſs perplexing to young practitioners, a purpoſe which it appears well calculated to fulfil, notwithſtanding the objections of ſome authors.

When the labour is protracted beyond the more uſual limits, the woman becomes anxious

* See Dr Oſborn's Eſſays on Laborious Labour, p. 50.

anxious and dejected; the pains occasionally remit and recur with frequency and violence, or alternate with imperfect and irregular intervals of ease; the progress is slow and imperceptible; her spirits are exhausted from restlessness and apprehension, or while the pains abate she insensibly falls into short but unrefreshing slumbers. In the case under consideration, the resisting at last yield to the propelling powers, and the labour, after perhaps a period of two or three complete days, is accomplished with perfect safety both to mother and child.

After a labour has by its duration ceased to be natural, the first object of the practitioner ought to be to determine the order of laborious labour to which it properly belongs. This is, in many cases, ascertained with great difficulty; and although some general rules may be established to direct the judgment under such circumstances, yet these are to be regarded as being liable to many exceptions.

It is by an attentive consideration of the following

following circumſtances that it can be determined, in laborious caſes, whether the efforts of nature ſhall be adequate to the expulſion of the child, or whether artificial delivery be inevitable.

1ſt, The previous hiſtory of the patient.

2d, The duration of labour.

3d, The ſtate of the patient's ſtrength.

4th, The apparent efficacy of the labour throes.

5th, The progreſs of the child, and the ſtate of the paſſages *.

The cauſe of this order of labours moſt frequently is, diminution of the propelling powers, and, at any rate, the increaſe of the reſiſting ones that ſometimes occurs in ſuch caſes is ſeldom the ſole cauſe of difficulty.

The propelling powers are diminiſhed in conſequence of ſome circumſtance affecting the mother, ſuch as the following:

a. De-

* On this ſubject Dr Oſborn has made ſome valuable obſervations, p. 56.

a. Debility.

b. Passions of the mind.

c. Torpor of the uterus.

d. Over distension of the uterus.

The resisting powers are increased by some fault on the part of the mother, or of the child and secundines.

On the part of the former, they are increased by

e. Distension of the urinary bladder.

f. Rigidity of the os tincæ.

g. Rigidity of the external parts.

On that of the latter, or of the child and secundines, by

h. Increased bulk of the infant.

i. Unfavourable position of the head.

k. Rigidity of the membranes of the ovum.

l. Premature laceration of those membranes.

To these causes some authors have added

Obliquity of the uterus.

Anchylosis of the os coccygis, and

Unusual shortness of the funis umbilicalis.

It does not, however, appear that any decided proofs have been produced to eſtabliſh theſe as cauſes of lingering labour.

As the cauſes now enumerated exiſt ſingly or combined, the labour will be leſs or more difficult and painful.

In all theſe caſes, the great object ought to be to gain time; and hence every means that can inſpire confidence and encourage patience ſhould be employed.

The method of obviating the ſeveral cauſes, we ſhall now conciſely direct.

I. *Debility.*—Lowneſs and faintneſs often occur at the beginning of labour, and have a conſiderable influence in retarding its termination. They happen chiefly to women of weak nerves, or others whoſe health has been impaired from previous ſickneſs or miſmanagement, and accompany the firſt part of labour only. In its progreſs, the woman acquires freſh vigour and additional reſolution; the pains become ſtrong and forcing; the delivery, even where the

the patient appears to be weak and exhaust-ed, often has a safe termination, though several days should be necessary to accomplish it; and the recovery is as favourable as if the whole management had been regulated by the wishes of the attendants *.

In cases of lowness and depression, the great object to be aimed at is to gain time, to support the patient's strength and spirits, to guard against putting her on labour too early, and to use every means for reserving her strength and resolution. When the pains are slow and trifling, when she is restless, anxious, and dejected, opiates often produce the happiest effects; they remove grinding fruitless pains, recruit the spirits, and amuse the patient during the tedious and painful time. We can scarcely aim at more; for, though the dilatation of the uterus, and progressive steps of the labour, advanee

* I have attended a patient three days and nights, and one whole fourth day, without danger: the woman crooked, and the child large. She lived all the time on tea and gruel only. *Dr Hunter's MS. Lectures on the Gravid Uterus, article* Difficult Labours.

advance by ſlow degrees, under proper management, and while no alarming ſymptoms occur, no danger from delay is ever to be dreaded.

Paſſions of the Mind.—All violent emotions of the mind influence greatly the progreſs of labour; and hence every circumſtance, which can tend to excite theſe, ought to be with great care avoided.

Torpor of the Uterus—is moſt ordinarily the effect of officious interference; and is beſt overcome by refraining from all attempts to aſſiſt delivery for ſeveral hours.

Over-diſtenſion of the Uterus.—The overdiſtenſion of the uterus impairs the action of its muſcular fibres, and may for ſome time prevent thoſe ſpaſmodic efforts by which the os tincæ is opened and the fœtus expelled; there may be alſo other cauſes of torpor, or want of irritability, of which we are ignorant. Exceſſive diſtenſion of the uterine fibres can only, however, have a temporary effect to retard the labour; and it is little in our power to obviate the defect, till the membranes can be ruptured and

and the water evacuated ; the uterus then coming in close contact with the body of the fœtus, the head will begin to press against the orifice, and the pains become strong and forcing.

But, as many inconveniences are known to ensue from an early discharge of the waters, that expedient should be the result of the most cautious and deliberate reflection ; and should never be had recourse to till the orifice be sufficiently dilated.

II. *Distension of the urinary bladder*—in tedious labours frequently occurs ; and, besides contributing to retard the delivery, is productive of much danger. It should be early guarded against by abstinence from drink ; and, when it does happen, ought to be removed as soon as discovered, by evacuating the urine, gently pressing back the child's head with the fingers, when the introduction of the catheter is difficult.

Constriction or Rigidity of the cervix, or Orificium Uteri.—This is one of the most common causes of lingering labours ; it

chiefly occurs in elderly women, in ſtrong robuſt conſtitutions, or where the intervals between child-bearing have been diſtant. If the orificium uteri, inſtead of kindly opening with the pains, and becoming thin, ſoft, and dilatable, ſhould form a thick ring or flap, ſtretch ſlowly, while the pains are frequent, but unprofitable, a tedious labour may be expected. But, though the labour be lingering, if we have only patience to wait on Nature, we ſhall generally find her efforts ſufficient: for, in a firſt labour, or when the woman is advanced in life, and the parts are dry and rigid, from 36 hours to three days may be required for the dilatation of the orifice of the womb; yet if the management be properly regulated, neither the mother nor the child will be in danger, and the mother's recovery will perhaps go on as favourably as if the delivery had been accompliſhed in a few hours. The beſt means for removing the impediments under conſideration are, blood-letting, opiates, and exhibiting, from time to time, glyſter

containing

containing a large quantity, as 60 or 80 drops of tinct. opii.

Rigidity of the external parts.—The resistance of the soft parts is a very frequent cause of tedious labours; hence robust women suffer more than those who are of a delicate frame. In the former, the parts are tense and rigid, and stretch slowly. In the latter, they are more relaxed, soft, and yielding. This cause of difficulty is best obviated by blood-letting, the application of unctuous substances to the external parts, and above all allowing time for the gradual dilatation Every attempt to stretch the parts, by manual operations, is productive of great injury.

III. *Increased bulk of the Infant.*—The bulk of the child may be originally considerably above the common standard, or it may be greatly increased in consequence of the putrefaction, which soon succeeds the death of the infant, when that event happens during labour.

In either caſe, if there be no other cauſe of difficulty combined, the powers of Nature may be, in general, very ſafely relied on.

Unfavourable poſition of the head.—When the head is not applied to the paſſages through which it muſt be forced, ſo as to occupy the leaſt poſſible ſpace, a greater than uſual degree of force is required to propel it, and hence the proceſs of delivery muſt be protracted.

If the other circumſtances of the caſe be favourable, no extraordinary aſſiſtance whatever is required. The ſtrength of the patient muſt be ſupported; and every means ſhould be adopted which can tend to encourage her to indure with patience the protracted ſuffering.

Rigidity of the Membranes of the Ovum.—From this cauſe, the birth is, in ſome inſtances, rendered tedious; but, as the ſame effect is more frequently produced by the contrary, and the conſequences are much more troubleſome and dangerous, practitioners ſhould be exceedingly cautious of

having

having recourse to the common expedient of breaking them till there be a great probability that the difficulty proceeds from that circumstance; and, even then, it ought not to be done till the parts be completely dilated, and the head of the child well advanced in the pelvis.

Many inconveniences ensue from a premature evacuation of the waters; for the parts then become dry and rigid; the dilatation goes on more slowly; the pains often either remit, or become less strong and forcing, although not less painful and fatiguing; the mouth of the womb, which was previously thin and yielding, may be observed to contract, and to form a thick ring, for some time obstinately resisting the force of the pains; the woman's strength languishes, and her spirits are overcome and exhausted; and, at last, the child's head becomes locked into the pelvis, merely from want of force of the pains to propel it.

An inconvenience of *too great rigidity* of the membranes is, that the child at full time

time may be protruded, inclofed in the complete membranous bag, furrounded with the waters. But fuch inftances feldom occur. When the whole ovum is thus protruded at once, there is hazard of flooding from the fudden detachment of the placenta and membranes. It fhould, therefore, be prevented by breaking the membranes, when they advance and fpread out at the os externum.

The method of breaking the membranes is, to pinch them between the finger and thumb; to pufh a finger againft them in time of a pain; to run the ftillet of a catheter through them; or, when they are applied in clofe contact with the child's head, they muft be deftroyed by fcratching with the nail, but care ought to be taken left the fcalp of the child's head, covered with mucus, fhould be miftaken for the membranes.

Premature rupture of the membranes.— The inconveniences, and even dangers, which refult from the too early rupture of the

the membranes, have been juſt hinted at, and conſequently that accident ſhould be very carefully guarded againſt.

Where labour is rendered lingering from this cauſe, the practitioner ſhould endeavour to diminiſh, for he can ſeldom entirely ſuſpend, the premature action of the uterus, that the ſtrength of the patient may not be exhauſted by the unavailing throes. This purpoſe is effected by opiates.

Thus in all caſes belonging to this order of laborious labour, the event will be favourable, provided the practitioner be not perſuaded, by the importunate intreaties of the patient and attendants, to interfere officiouſly and prematurely. And experience has proved, that women, in whom the proceſs of delivery has occupied the ſpace of ſeveral days, have frequently as favourable and expeditious recoveries as thoſe in whom the whole operation had been accompliſhed within a few hours.

SEC-

SECTION II.

SECOND ORDER OF LABORIOUS LABOUR.

THE 2d order of laborious labour comprehends thoſe caſes where, although the head preſents, the efforts of nature are inſufficient to accompliſh delivery, and where ſuch means of art may be employed for that purpoſe, as ſhall injure neither mother nor child.

This order is diſtinguiſhed from the former by conſidering the previous hiſtory of the patient, the ſituation of the child's head, and the ſtate of the paſſages.

The cauſe generally is deficiency of action of the propelling powers; but ſometimes this is combined with increaſe of the reſiſting powers, in conſequence of unfavourable poſition of the child's head.

The means adapted to effect the delivery, under ſuch circumſtances, muſt, therefore, be calculated both to ſupply an acquivalent

to

to the propelling powers, and to alter the ſituation of the child's head.

The inſtruments that have been had recourſe to with theſe intentions, are fillets, the lever of Roonhuyſen, the lever of Lowder, and the forceps.

Fillets are now no longer uſed in laborious labours, becauſe it was found that they could not be applied without much difficulty and danger, and that even when applied they afforded little power to the operator.

The lever of Roonhuyſen, as it is at preſent uſed, conſiſts of " a piece of iron curved at each extremity, thirteen inches and an half long, one inch and an eigthth in width, increaſing to an inch and an half at that end which is commonly uſed, carefully ſmoothed and rounded at each extremity, in the manner the forceps are uſually finiſhed, plain on its inner ſurface, but with its back convex, and of a ſufficient thickneſs to prevent its bending during the operation of extracting the head; the curves are

are nearly equal, and about the depth of the largeſt of Roonhuyſen's; one extremity is made thinner and narrower than theother." *

As it is impoſſible to employ this inſtrument without making ſome part of the woman the fulcrum on which it acts, and as, where the reſiſtance to be overcome is conſiderable, the preſſure thereby induced is productive of much injury, judicious practitioners have laid aſide the lever of Roonhuyſen as well as the antient fillets.

The inſtruments therefore which alone are, and ought to be employed in the management of this order of labours are, Lowder's lever and the forceps.

Lowder's lever "conſiſts of a blade and handle, (between which there is a hinge that renders it portable,) meaſuring in length 11½ inches. Its length before it be

* See London Medical Communications, vol. 2. p. 447. containing ſome account of the invention and uſe of the lever of Roonhuyſen, by R. Bland, M. D.

be curved is 12½ inches. The curve begins about half an inch from the hinge. It describes, reckoning an inch from its first curvature, as nearly as can be estimated, an arc of 87 degrees of a circle, the radius of which is four inches. The breadth of the blade at the beginning of the curve is half an inch, and is gradually increased, till within three quarters of an inch of the extremity, when it measures an inch and three fourths. Its extremity is semicircular. Within two and an half inches of the extremity, there is an oval opening measuring 2½ inches in length, and 1¾ at its greatest breadth. By this opening, the depth of the curve is considerably increased without rendering the instrument inconvenient in its introduction*."

The forceps is an instrument composed of

* For a particular account of this Instrument, the reader is referred to an Essay on the subject, by James Hamilton, jun. M. D. in the 8th vol. of the 2d Decade of Dr Duncan's Medical Commentaries.

of two pieces adapted to embrace firmly the head of the child. Since the original invention, the forceps have undergone a variety of improvements. The inftrument of this kind, that feems to me beft contrived to anfwer the purpofes for which the forceps are defigned, is nearly of the fame fhape with that improved by Dr Wal. Johnfton. Its length is eleven inches; that of each handle $4\frac{1}{2}$ inches. If a ftraight line be drawn through the centre of the plane furface of one handle, and be produced to the extremity of the inftrument (which forms the axis of the handles when both are joined), the convex edge of the blade, at the greateft diftance from this line, is diftant $1\frac{1}{8}$ inches, and the extreme diftance of the point on the oppofite edge is $\frac{13}{16}$ of an inch. When both blades are joined, their greateft width is $2\frac{3}{4}$ inches. The right hand blade has a hinge between the handle and blade, by which it is eafily introduced while the patient lies on the left fide.

In fome cafes, a pair of longer forceps than

than the above is found neceſſary, but the greateſt length that ought ever to be uſed ſhould not exceed twelve inches; and much experience in applying the inſtrument is required, before a practitioner can with ſafety venture to employ one of even that length.

§ 1. *Method of Uſing Lowder's Lever.*

Lowder's lever may be had recourſe to either while the head of the child is ſtill ſituated very high in the pelvis, or when it reſts on the ſoft parts at the outlet of that cavity.

1. In the firſt caſe, it is to be applied over the occiput of the child, ſo that the extremity of the inſtrument be within a very little of the nape of the neck.

Where there are uterine pains, the operator ſhould draw down only during a pain, exerting all the power of the inſtrument upon the occiput of the child, ſo that there ſhall be no injurious preſſure on the parts of the woman. During the intervals, he ſhould reſt, and ſhould wrap a ſoft

warm cloth round the handle of the lever. Where there are no pains, the operator muſt imitate, as nearly as poſſible, the natural efforts, by drawing down only from time to time.

In this manner, the head ſhould be drawn down till the whole of it be completely within the cavity of the pelvis; to accompliſh which it will, in ſome caſes, require the continued exertions of the practitioner for ſeveral hours, and, in ſome caſes, for a much ſhorter time. This depends entirely upon the ſtate of the uterine action; for, where the labour throes co-operate, the operation is greatly facilitated.

When the head is brought thus low, if any circumſtance ſhould happen to render immediate delivery neceſſary, or eligible, the forceps ought to be employed; for it is in the power of the operator to finiſh the extraction of the head, when in the poſition alluded to, much more expeditiouſly by means of the forceps than of the lever.

2. When it is reſolved to apply, or to continue

continue the application of the lever after the head has been made to reſt on the parts at the outlet of the pelvis, the inſtrument ſhould be kept preſſing on the occiput, until the face ſhall be completely turned into the hollow of the ſacrum, when its ſituation muſt be changed by applying it over the chin, ſo as to preſs on that part.

In operating with the lever in this poſition, the practitioner ſhould ſupport carefully the perinæum with his left hand, while with his right he ſhould preſs with the inſtrument in ſuch a manner as to imitate the proceſs of Nature, by diſengaging the chin from the breaſt, and making the occiput riſe under the arch of the pubes.

§ 2. *Method of Uſing the Short Forceps.*

The ſhort forceps can never be uſed with advantage, unleſs the head of the child be completely, or nearly ſo at leaſt, within the cavity of the pelvis.

The inſtrument is to be ſo applied that each blade ſhall embrace the head by an

equal number of points of contact; for which purpose the blades are to be placed over the ears.

The convex edge of the forceps must always be so situated as to be immediately, or eventually, towards the hollow of the sacrum.

The position of the patient should be on the left side in bed. This is best suited to her comfort, for every unusual position alarms women much.

Previous to the introduction of the instrument, the exact situation of the head of the child should be ascertained; the bladder and rectum of the patient should, if necessary, be emptied, and the blades of the instrument should be warmed and lubricated

That blade which is most difficultly applied should be first introduced.

The operator should insinuate two fingers of one hand over the ear of the infant, and then pass the blade of the instrument along his fingers, till it be brought into the proper situation.

Should

Should any resistance oppose the passage of the blade, it is to be overcome by gentle insinuation, and not by force.

The first blade being thus applied, the fingers of the hand (that had been introduced) must be withdrawn, and those of the other hand insinuated at the opposite part of the pelvis, so as to be placed over the other ear; and then the second blade must be passed up with the same precautions as the first, taking care that they shall be exact antagonists to each other, and that their locking parts shall be so placed as to be readily brought together.

The blades are now to be locked, and, if they be properly applied, this is accomplished without any difficulty. As in doing this, some of the external parts of the woman are exceedingly apt to insinuate themselves between the locks, and hence occasion much pain, care must be taken to prevent that circumstance.

When it is found impossible to lock the blades without using great force, the last introduced blade should be withdrawn,

the poſition of that remaining ſhould be carefully adjuſted, and the other blade again introduced with all the neceſſary attentions and precautions. It is dangerous to attempt turning the blades from one ſituation to another while within the pelvis. The blades, thus locked, muſt be ſecured in their poſition by paſſing a fillet round the handles.

Before beginning to draw down, the operator ſhould aſcertain that the blades are properly applied, that there may be no danger of their ſlipping off during the operation.

The extraction muſt be attempted with one hand only, the other being employed to guard the perinæum. As ſafety, not expedition, is the object in view, our efforts ſhould be very ſlowly and gently performed, approaching as nearly to Nature as it is poſſible for art to atchieve. An inconſiderable exertion of mechanical power continued, or frequently repeated, will accompliſh the end as effectually as, and much more ſafely than, any great degree of force.

The

The instrument, therefore, should be moved only during a pain, if there be any, and, if there be no pains, only from time to time.

In extracting, the two great objects to be attended to are, to retain a secure hold, and to accommodate the head to the passages through which it is to be brought. The former of these is attained by drawing always in the direction of from blade to blade, and never straight downwards. To accomplish the latter, the mechanism of labour must be constantly kept in view.

During the intervals of acting with the instrument, the fillet, binding the handles, must be loosened, that the pressure may be taken off from the head of the child.

The greater the resistance to the extraction is, the more slowly and cautiously should the operation be conducted, as the obstacles are to be overcome by perseverance, and not by force.

When the soft parts begin to be protruded, the utmost caution is required to guard them from laceration; and, therefore, in-

ſtead of precipitating the delivery at this period, it is neceſſary, moſt commonly, to retard it, lubricating the parts during the intervals of extracting.

The forceps are not to be withdrawn, until the head of the infant be completely protruded without the parts, and then they are to be removed blade by blade, and the ſubſequent part of the delivery finiſhed as in natural labour.

§ 3. *Particular Caſes Requiring the Uſe of the Lever.*

In the order of laborious labour, at preſent under conſideration, the cauſes of difficulty are, it has been mentioned, either deficiency of the propelling powers, or, along with that, encreaſe of the reſiſting powers by unfavourable poſition of the child's head. The former of theſe cauſes is occaſioned by all the circumſtances already enumerated in treating of the firſt order of laborious labours.

The unfavourable poſitions alluded to are, preſentations of

The

The anterior fontanelle, inftead of the pofterior,

The face, and

The forehead.

Where the anterior fontanelle prefents, the face is frequently turned under the fymphyfis pubis, inftead of into the hollow of the facrum. And, when the face or forehead prefent, the chin is fometimes placed towards the pubis, and fometimes towards the facrum, though moft frequently it is in the former of thefe fituations. Thefe conftitute varieties of unfavourable pofitions.

The lever and forceps, therefore, are ufed in cafes when the child's head is in the natural pofition, and when it is unfavourably fituated. The cafes in which the one or the other inftrument is to be employed are now to be determined. But the general rules on this fubject, it is to be remarked, are liable to many exceptions.

When it is found neceffary to interfere, while the head has not advanced above one half within the cavity of the pelvis, its pofition

ſition being natural, the lever is preferable to the forceps, provided there be labour throes, however ſlight theſe may be. No particular rules for the uſe of the lever in this caſe are required.

In face preſentations, when it is neceſſary to interfere, (for the labour is not to be claſſed as laborious merely becauſe the face preſents) the lever is ſuperior to every other inſtrument.

It is to be ſo employed as to bring down the occiput, by which the head is made to occupy much leſs ſpace than when the face preſents.

For this purpoſe, the inſtrument is to be applied over the occiput; and while the operator, with one hand, draws down the occiput, he ought, with two fingers of the other hand, to endeavour to puſh up very gently the chin, or in many caſes, it is ſufficient merely to preſs firmly on that part.

In ſome caſes there is an increaſe of the reſiſting powers, rendering the labour laborious

borious in consequence of a slight deficiency of space at the brim of the pelvis. In such cases, the lever may also be advantageously employed to augment the vis a tergo.

Such are the cases in which Lowder's lever appears to be the mechanical expedient best adapted to accomplish the delivery. In many of the other cases, belonging to this order of labours, it may be used, but in general not with such advantage as the forceps. And in some of them, as when there are no pains, and the symptoms are so urgent as to require immediate delivery, it would be unjustifiable to attempt delivery with the lever, as the delay, occasioned by that attempt, might prove fatal to the patient.

§ 4. *Particular Cases Requiring the Use of the Short Forceps.*

The particular cases, in which the short forceps ought to be employed, may be divided into those where the face is,

1st,

1ſt, In the hollow of the ſacrum.

2dly, To one ſide of the pelvis.

3dly, Under the ſymphyſis pubis.

It has been already mentioned, that unleſs the head be completely, or nearly ſo, within the cavity of the pelvis, the ſhort forceps are inapplicable.

1. When the face is in the hollow of the ſacrum, the inſtrument is applied with great facility, and the extraction of the head may be accompliſhed without any difficulty.

The general rules reſpecting the poſition of the patient, &c. having been obſerved, the practitioner is to inſinuate two fingers of his left hand at the right ſide of the pelvis, and paſs them over the ear of the child. He is then to introduce, with great caution, the right hand blade of the inſtrument between his fingers and the head of the child, and to carry it forward till its point be over the ear.

The fingers of the left hand are now to be withdrawn, and thoſe of the right hand are to be inſinuated, in the manner the former

mer had been, at the left ſide of the pelvis, retaining, till this be done, the blade which is applied in its proper ſituation, by means of the left hand, and keeping the fore-finger over its locking part to prevent its hurting the patient.

The ſecond ear being thus felt, the firſt introduced blade is to be ſupported by the right hand, while, with the left, the ſecond blade is to be paſſed up according to the general rules, and the two blades made to lock on the ſame principles.

In extracting, the handles are to be inclined at firſt as far back towards the anus as poſſible, till the occiput is brought fairly into the arch of the pubis, when they are to be gradually carried up towards the abdomen, that the chin may be diſengaged from the breaſt; the operator, in the mean time, taking care to draw only from blade to blade, to operate ſlowly, and to guard conſtantly the perinæum.

2. When the face is towards one ſide of the pelvis, the operation is always attended with conſiderable difficulty.

This

This caſe is diſtinguiſhed from the former by the perinæal tumor not being formed, and by actual examination.

The firſt circumſtance that requires attention is, to aſcertain the ſide to which the face is; and that is done by feeling attentively the ear placed under the ſymphyſis pubis.

One of the firſt ſteps of the operation, in this caſe, is a deviation from the general rules; for the eaſieſt introduced blade is to be firſt applied inſtead of that which is moſt difficult.

That blade, therefore, which is to be placed over the ear under the pubis, is to be applied before the other; and, according as the face is to the one or other ſide of the pelvis, either blade muſt be employed for this purpoſe. Thus, if the face be to the right ſide, the right hand blade is to be introduced under the pubes.

The one blade being thus properly applied over the ear, the other blade is to be very cautiouſly paſſed up in the exactly oppoſite direction, guided beyond the vagina by

by the fingers of one hand, as the distance at which that ear next the sacrum lies prevents the fingers reaching it.

Both blades are now to be locked, with the ordinary precautions, and the extraction is to be begun. While the motion of the instrument is, as usual, to be made in the direction of from blade to blade, the face should be gradually turned by a due inclination of the handles into the hollow of the sacrum; and, when that is effected, the delivery is to be finished in the same manner as in the preceding case.

3. Where the face is turned under the symphysis pubis, the blades are to be applied exactly as if it were in the hollow of the sacrum.

The great difficulty in this case occurs in the extraction.

If the head, in this position, be completely within the cavity of the pelvis, (and unless it be so, the short forceps ought not to be applied) the object of the operator must be to extract the occiput before the face.

For

For this purpoſe, the handles of the inſtrument ſhould be kept as much towards the abdomen as poſſible, while the common motion, from blade to blade, is carefully exerted. By due perſeverance in this manner, the occiput will eventually be protruded, and then the face is eaſily diſengaged by inclining the handles back towards the anus.

§ 5. *Caſes Requiring the Uſe of the Long Forceps.*

The long forceps is an inſtrument which ought not to be in common uſe, as it is in many parts of the continent, becauſe the operator works with it in the dark, and poſſeſſes ſo extenſive a power by it, that he may do irreparable miſchief in a very ſhort ſpace of time, and even without being aware of it.

For this reaſon, the long forceps ſhould never be employed, unleſs it be abſolutely neceſſary to finiſh the delivery immediately, while the head of the child is ſituated high in

in the pelvis, and while there are no pains to aſſiſt the action of Lowder's lever. If, under ſuch circumſtances, there be a ſlight deficiency of ſpace about the brim of the pelvis, a chance is afforded, by the uſe of the long forceps, of ſuperſeding the neceſſity of having recourſe to the dreadful expedient of opening the head of the child. And if, on the contrary, under the ſame circumſtances, the woman is well formed, and has formerly had children, or has the ſoft parts quite relaxed, the extraction of the child will be an operation of great facility; and the only difficulty, in the uſe of the inſtrument, will be its proper and ſafe application.

On the whole, if poſſible, no practitioner ſhould ever employ the long forceps until he have had conſiderable experience in the uſe of the common ſhort forceps.

The rules, for the application of this inſtrument, can only be learned by habit. They conſiſt in ſecuring a ſafe hold of the head, and in accommodating it to the paſſages through which it is to be brought.

§ 6. *General Obſervations on the Second Order of Laborious Labours.*

Although it has been ſtated, that the inſtruments employed in this order of laborious labours are ſo formed as neither to injure the mother nor child, it is not to be underſtood, that it is meant to aſſert no ſuch injuries can follow their uſe. The fact is quite the reverſe; for the ſafety of mother and child, where ſuch expedients are had recourſe to, depends both on the time and manner of their application.

Reſpecting the latter of theſe circumſtances, all that is neceſſary, in a work of this kind, has been already detailed; but on the former ſubject, viz. on the time of application of inſtruments, ſome obſervations are required.

Nothing elſe than the conviction that the powers of Nature are inadequate to the ſafe expulſion of the child, ought ever to induce any practitioner to have recourſe to inſtrumental delivery. The time for the employ-

employment of inſtruments is, when the circumſtances of the caſe have impreſſed on his mind this conviction.

Were he to yield to the ſuggeſtions of his own convenience or intereſt, or to the impertinent clamours of the attendants, or to the importunate entreaties of the patient herſelf, he would frequently commit much miſchief.

That it is ſometimes extremely difficult to draw the proper line of diſtinction, by neither precipitating nor delaying too long the uſe of mechanical expedients, cannot de denied; but it is the duty of every one, who means to practiſe midwifery, to endeavour to acquire the knowledge requiſite to direct his judgment on ſuch occaſions.

SECTION III.

THIRD ORDER OF LABORIOUS LABOURS.

UNDER this order are comprehended all thoſe caſes (as already mentioned) where it is impoſſible to extract the infant, through

the natural paſſages, without diminiſhing its bulk.

The cauſe of difficulty, in labours of this kind, is ſuch a diminution of the capacity of the pelvis, as prevents the head of the child being forced through it, either by the natural propelling powers, or by artificial means.

The preciſe degree of deficiency of capacity in the pelvis, which produces this effect, is not uniformly the ſame in every caſe; becauſe, in children at the full period of geſtation, the head varies very conſiderably in ſize and in compreſſibility.

It is impoſſible alſo to aſcertain, in the living ſubject, with geometrical preciſion, the capacity of the ſeveral parts of the pelvis. There is always a riſk of miſtaking the dimenſions by at leaſt a quarter of an inch.

For theſe reaſons, unleſs the deficiency of ſpace be very conſiderable, as when the ſhort diameter, at the brim or outlet, does not exceed two inches, it cannot be determined, at the beginning of labour, whether

an individual case shall fall under the second or the third order of laborious labours. It is necessary to wait the result of the uterine contractions, and to ascertain, with care, the consequent progressive advancement of the child's head.

When, notwithstanding long continued labour-throes, the bulky part of the head remains above the narrow part of the pelvis, although the head be in a favourable position, and when such symptoms have supervened as render further delay of assistance dangerous or improper, then the case may be referred to the third order of laborious labour; provided it have been found, by a cautious trial, that neither Lowder's lever, nor the long forceps, are adequate to the extraction of the child.

The diminution of the capacity of the pelvis, either at the brim or outlet, or in its cavity, is occasioned by derangement in the shape or connection of the bones, or by an accumulation of fæces in the rectum, or by swelling of the soft parts lining the pelvis,

or by diſeaſes of the internal or external organs of generation.

It is ſometimes in the power of the practitioner to remove the obſtacles induced by the ſecond and the laſt of theſe cauſes; that is, an accumulation of fæces in the rectum, if early diſcovered, may be expelled, tumours within the uterus, or on its appendages, may be puſhed back, and obſtructions about the external parts may be cleared by the knife.

When the obſtacle, ariſing from deficiency of ſpace, cannot be ſurmounted, as when it proceeds from the ſtate of the bones, or the ſwelling of the ſoft parts, three expedients to accompliſh the delivery have been propoſed, viz. to open the head of the child and diminiſh its bulk, or to cut through the parietes of the abdomen, or to divide the bones of the pubes at their ſymphyſis. The firſt of theſe is ſtyled the operation of Embryotomy, or Embryulcia; the ſecond is called the Cæſarean Section; and the third is termed the diviſion of the ſymphyſis pubis or the Sigaultian operation.

§ I.

§ 1. *Of the Operation of Embryotomy.*

In this operation two objects are to be attained; the head of the child is to be opened, and its contents discharged, and the mangled infant is to be extracted. The instrument, employed with the former intention, is named perforator, and that used for the latter purpose is called crotchet.

The position of the patient in this operation should be the same as that in natural labour. The bladder and rectum, if necessary and practicable, should be emptied before the operation be begun.

If this operation be not determined on till it have been decidedly ascertained that the uterine contractions are incapable of surmounting the obstacles to the passage of the child, the proper time for performing it cannot be ambiguous; it should be performed as soon as its necessity is established.

But, in cases of very obvious and considerable diminution of the capacity of the

pelvis, the operation ſhould not be begun till the os uteri be as much dilated as the ſtate of the brim of the pelvis will admit.

All preliminary matters being adjuſted, the practitioner is to introduce two fingers of his left hand into the vagina, ſo that their points ſhall reſt on the child's head.

He is next to take the perforator in his right hand, and, having inſinuated it along the fingers of his left hand introduced within the parts, he is to puſh, with a boring ſort of motion, its point into the cranium, and to plunge it as deep as the reſts.

Having aſſured himſelf that it is really within the ſkull, he is to ſeparate the handles of the inſtrument, ſo that the points ſhall be in the direction of the longeſt diameter of the pelvis, guarding them carefully by the fingers of the left hand. For this purpoſe, it is neceſſary that an aſſiſtant ſhall hold one ring of the handles, while the practitioner himſelf draws out the other.

The inſtrument is to be ſhut and opened in the ſame direction, and with the ſame precautions for ſeveral times, till a very large

large opening into the head ſhall be made. It is then to be withdrawn in the ſame cautious manner in which it was introduced.

The texture of the brain is now to be broken down by means of the crotchet paſſed into the opening of the cranium; and the brain is to be ſcooped out with the fingers, or by an iron ſcoop, and received in a baſon with ſand or aſhes.

If after this part of the operation is finiſhed, any portion of the cranial bones be found looſe, or nearly diſengaged, it is to be removed either by the fingers or a pair of ſmall forceps. And, at any rate, the teguments are to be drawn over the ruggid bones.

The ſecond part of the operation, viz. the extraction, was formerly attempted immediately after the brain was evacuated; but ſometimes this was found impracticable; and, as experience ſhewed that, after the interval of a few hours, the difficulty was often eaſily ſurmounted, practitioners were

were led to inquire into the propriety of the general rule. The reſult was, that the rule alluded to was found to be a very improper one; and Dr Oſborn has clearly proved, that many advantages accrue from delaying the extraction for 12 or 24 hours, according to circumſtances, after the diſcharge of the contents of the cranium.

By this practice, the ſtrength of the patient is recruited, all injurious preſſure being removed, while, at the ſame time, the proceſs of putrefaction taking place in the body of the infant, the extraction is more eaſily accompliſhed than it can be when the child is quite rigid.

Before any attempt be made to fix the crotchet, two fingers of the left hand muſt be introduced within the vagina. They are to be retained there during the whole proceſs of extraction, or at leaſt are to be introduced every time the crotchet is uſed.

The crotchet is to be applied on the inſide

side of the skull, and fixed wherever the most secure hold can be obtained. Its point must be constantly and carefully guarded by the fingers.

The force employed in drawing down must be exerted only from time to time, or if there be labour throes only during their occurrence. It should be gradually increased as occasion requires.

Where there is considerable resistance, the portion of bone, in which the instrument is inserted, soon gives way. As soon as this is perceived, the practitioner must cease to draw down, and, laying the crotchet a little to a side, must remove the detached portion either by his fingers or by the small forceps.

After all the superior part of the cranium is in this way extracted, the instrument must be fixed in the basis of the skull, as in the foramen magnum, or on some part of the outside, still observing the former precaution of guarding its point.

To accomplish the extraction, not only

is it neceſſary, in caſes of great deficiency of ſpace, to uſe very conſiderable exertions of force, but alſo to accommodate the mangled head to the apertures of the pelvis, ſo as that it ſhall occupy the leaſt poſſible room. By patient perſeverance in theſe efforts, the extraction of the head will be at laſt completed, unleſs the diameter of the brim, or outlet, be unfortunately exceedingly ſhort, as conſiderably under two inches. In ſuch caſes, the operation of Embryotomy is not proper nor juſtifiable.

Although the head be extracted, it often happens that much difficulty is experienced in drawing forward the body. Where the reſiſtance is very great, the thorax ſhould be opened by introducing the crotchet under the arm-pit, and ſome of the contents of that cavity ſhould be diſcharged.

As it is within the verge of poſſibility, that a caſe may occur where, by the ignorance of an operator, the vertebræ of the neck

neck have been ſeparated, and the head thereby ſevered from the body, while both ſtill remain in utero, it may be neceſſary to direct the treatment of ſuch a caſe.

In theſe circumſtances the head, if it cannot be extracted firſt, muſt be puſhed up above the brim of the pelvis; the crotchet or blunt-hook muſt be fixed under the axilla, the arms muſt be brought down; and the body extracted by fixing the crotchet below the ſcapula, on the ſternum, or among the ribs *; a method preferable to that of turning, as ſome adviſe. The head muſt afterwards be extracted with the crotchet.

§ 2.

* Such a caſe actually occurred to the late Mr Robert Smith ſurgeon in this city, ſoon after he began to practiſe. The particular circumſtances of this ſingular hiſtory, as communicated to me by Mr Smith himſelf, are as follow:—A young woman had been ſeveral days in ſtrong labour; the head, he imagined, had originally preſented in an oblique direction at the brim of the pelvis. The patient was ſo much exhauſted when Mr Smith was called, and ſhe was otherwiſe ſeemingly ſo low, that it was doubtful to him whether ſhe could ſup-

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§ 2. *Of the Cæsarean Operation.*

It has been propofed to perform this operation on the living fubject, under a great variety of circumftances, as in cafes of contracted paffages from cicatrix, callofities, or tumours any where about the vagina or os tincæ;

port the fatigue of delivery. The cafe appeared the more difcouraging and unfavourable, becaufe, on touching, he could not determine the manner in which the child prefented, its head having been formerly cut off from the body by an unfuccefsful attempt to procure delivery; nor could he even pofitively fay, whether it was a fœtus, or a very fingular monftrous production, from the uncommon feel which the ragged ftump of the neck gave to the touch. Determined, however, to give the woman a chance of life, he fixed a crotchet in the part which prefented, brought down firft one arm, then another; and afterwards, to his aftonifhment, extracted the trunk of a *body without a head.* On inquiry, he was informed that a furgeon in the neighbourhood had in vain, after many fruitlefs efforts, attempted to make the extraction, but abandoned the woman in that fituation, and affured the relations it was not poffible to accomplifh the delivery, which they had artfully concealed from Mr Smith. The head was afterwards extracted with the crotchet, and the woman had a good recovery.

tincæ; of lacerated uterus where the child has escaped partially or wholly into the cavity of the abdomen, of extra-uterine conception, of herniæ of the uterus, of unfavourable position, or extraordinary bulk, of the child; and of defective pelvis.

Unfortunately for suffering humanity, proofs can be established of the operation having been actually performed under all those several circumstances.

It ought not, therefore, to appear astonishing, that many practitioners of great eminence have strongly reprobated the operation; for it is not easy to separate in the mind the impression made by the abuse of means from the abstract consideration of the means themselves.

Another reason why many practitioners condemn the Cæsarean section is, the absurdity of the arguments in its favour, which have been urged by its partisans, and the glaring falsity of many of the cases that have been adduced in evidence of its safety and success.

When all these circumstances are considered,

dered, it is leſs to be wondered at that MARCHANT, MAURICEAU, PARRE, GUILEMEAU, and more lately SIR FIELDING OULD, and DR OSBORN, ſhould have written againſt it in the ſtrongeſt language, than that it has not been baniſhed from practice by the univerſal conſent of practitioners.

Thus SIR FIELDING OULD endeavours to prove the improbability, and even impoſſibility, of its ſucceſs from its analogy with other wounds, as well as from the anatomy of the parts. He is at great pains to invalidate the authority of BAUHIN, ROUSSET, LA MOTTE, and other favourers of the operation, by denying the facts they have endeavoured to tranſmit to poſterity in ſupport of it. None of theſe caſes, he hopes, will gain credit from readers in the preſent age, as he conſiders them to be fable and impoſture; and he concludes, "from reaſon, "theory, anatomy, and every thing con-"ſiſtant with ſurgery, that the Cæſarean "operation muſt be certainly mortal, and "hopes it will never be in the power of "any

"any one to prove it by experience *."
In ſhort, he calls it "a deteſtable, barbarous, "illegal, piece of inhumanity."

Dr Osborn declaims with equal vehemence againſt the operation †. As upon this ſubject the opinions of that gentleman are exceedingly different from my own, and, as he addreſſed me perſonally in his Eſſays, I was induced in 1792 to conſider the queſtion in a ſeparate publication ‡, to which I beg leave to refer thoſe who wiſh for a full diſcuſſion of this matter.

To thoſe engaged in the practice of midwifery, no ſubject can be more intereſting than the inveſtigation of the means beſt calculated to afford aid in caſes of extreme deformity of the pelvis. Such caſes, though fortunately rare, may, nevertheleſs, occur to any individual practitioner; and putting entirely aſide, for the ſake of argument

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* See Ould's Treatiſe of Midwifery, p. 156.

† See Oſborn's Eſſays, already referred to, p. 470, &c.

‡ Entitled Letters to Dr Oſborn on certain Doctrines contained in his Eſſays.

all conſiderations of the intereſts of humanity, (which, however, no man of honour will ever loſe ſight of in real practice) may happen to influence, very materially, his future proſperity. It is, therefore, preſumed, that no apology will be required for inveſtigating this ſubject a little more minutely than many of the other ſubjects are in this work.

No practitioner, it is hoped, would perform this operation, on the human body, from choice, for the ſake of experiment. Neceſſity is the ſole motive which can induce any one to attempt it; hence it muſt be determined, whether any ſuch neceſſity exiſts. This leads us to review the ſeveral caſes that have been ſuppoſed to require this expedient.

Contracted Paſſages from Cicatrix, Calloſity, and Tumors any where about the Vagina or Os Tincæ.—The vagina and os tincæ are ſometimes affected with conſtrictions from cicatrices, with calloſities and tumors; but it is never neceſſary to perform the Cæſarean

ſarean ſection on their account. Tumors in the vagina may generally be removed with ſafety even after the commencement of labour, and delivery will happily ſucceed; or it may be ſometimes practicable to paſs the hand by the ſide of the tumor, to turn the child, and deliver. There have been many inſtances where, at the commencement of labour, it was impoſſible to introduce a finger into the vagina; yet the parts have dilated as labour increaſed, and the delivery has terminated happily. At other times the dilatation has begun during pregnancy, and been completed before delivery. A ſtriking inſtance of this kind is recorded in the Mem^{s}. de l'Acad. des Sciences for 1712, of a woman whoſe vagina was no larger than to admit a common writing quill. She had been married at ſixteen, and conceived eleven years after. Towards the fifth month of her pregnancy, the vagina began to dilate, and continued to do ſo till full time, when ſhe was ſafely delivered.

GUILEMEAU dilated, and LA MOTTE extirpated, calloſities in the vagina and os

tincæ, when the children were ſucceſsfully expelled by the force of natural labour.

Dr Harvey relates a caſe where the whole vagina was grown together with cicatrices: Nature, after a tedious labour, made the dilatation, and a large child was born.

M. La Motte * mentions his having delivered three women, who had not the ſmalleſt veſtige of an orifice through the vagina to the uterus. Dr Simpson cut through a calloſity of an os uteri which was half an inch thick †, &c.

Upon the whole, tumors in the vagina, or about the orificium uteri, may be ſafely extirpated without danger of hæmorrhagy or other fatal ſymptoms, and the delivery may be thereby accompliſhed: and, if the vagina be impervious, the os externum ſhut up, or the labia grown together, the parts may be opened with a ſcalpel. If the os externum be entirely cloſed, if the cavity of

* Traité des Accouchemens, p. 527.
† Edinburgh Med. Eſſays, Vol. III.

of the vagina be filled up, or the paſſage conſiderably obſtructed by tumors, calloſity, or conſtriction from cicatrix, and there is no reaſon to ſuſpect a fault in the pelvis, of which a judgment may be formed by the common marks of deformity, underſize, or a rickety habit; it is by much the beſt practice to open a paſſage through the vagina, and deliver the woman in the ordinary way. If there be no defect in the pelvis, the head of the child, or any other bulky part that preſents, will advance in this direction, till it meets with a reſiſtance in the ſoft parts: the teguments, in that caſe, will be protruded before the child's head, in form of a tumor, when a ſimple inciſion downwards to the perinæum, in the direction of the axis vaginæ, will remove the cauſe of difficulty, by relieving the head; the child will afterwards ſafely paſs, and the wound will heal without any bad conſequence *.

* A caſe of this kind occurred to me in November 1786.

When there is any defect in the ſoft parts, which prevents the acceſs of the finger into the vagina, the head of the child may be readily felt, and the ſtate of the parts in ſome degree judged of by the introduction of a finger into the anus.

Lacerated Uterus is another cauſe, for which this operation has been recommended. The uterus may be ruptured from the croſs preſentation of the child in time of pregnancy, when the uterine fibres do not readily yield to the diſtending cauſe, or from mechanical violence in attempting delivery. Theſe caſes are generally fatal; and the life of the mother can ſeldom be ſaved by the Cæſarean ſection, after the fœtus eſcapes through the torn uterus into the cavity of the abdomen; becauſe inflammation and ſphacelus have generally affected the parts of the uterus that ſuſtained the preſſure, previous to the rupture; if otherwiſe, convulſions or other fatal ſymptoms ſoon enſue, from the quantity of blood,

waters,

waters, &c. poured into the cavity of the abdomen.

When the child cannot be extracted by the natural paſſages, tremors, ſingultus, cold ſweats, ſyncope, and the death of the mother, for the moſt part ſo quickly follow, that it will at leaſt ſeem doubtful to a humane practitioner, how far it would be adviſable, after ſo dreadful an accident, the woman being apparently in the agonies of death, raſhly to perform another dangerous operation, even with a view to preſerve the child, before he had waited till the mother recruits or expires.

If part of the child be contained within the uterus, and the feet can be reached, the beſt practice is to deliver by the orifice of the womb. When the whole fœtus has eſcaped entirely without the uterus, the Cæſarean operation is recommended as the only means of preſerving both mother and child.

But if the operation on this occaſion be ever allowable, it may be aſked,

First, At what time ſhould it be performed?

Secondly, Would it not have the appearance of inhumanity to have recourſe to this expedient immediately after the uterus burſts, when the woman is ſeemingly ready to expire, although it be the only time when there is a chance of ſaving the child?

Thirdly, In moſt caſes where this accident happens, Should the Cæſarean ſection be made? Is it not highly improbable that the mother will ſurvive ſo terrible a laceration? at leaſt, the uncertainty how long ſhe may ſervive it, ſeems a conſiderable obſtacle to the operation under ſuch diſagreeable circumſtances; *ne occidiſſe videatur, quem ſors interemit.*

Should, however, the patient recruit after the accident, and it be found impoſſible to extract the child through the ordinary paſſages, a ſimple inciſion through the integuments of the abdomen, may afford the means of ſaving the life of the woman.

Ventral Conception has been ſaid to be another

another indication for this operation. These are either in the ovaria, tubes, or cavity of the abdomen, and seldom arrive at great size; or are retained, often for a great many years, without occasioning much complaint. The issue of these conceptions has also been no less various than extraordinary; for, after having been long retained in an indolent state, abscesses or ulcerations have formed, and they have been discharged through all the different parts of the abdomen *.

Most women feel pain and violent motion towards the term of ordinary delivery in these cases of ventral conception; if, therefore, the operation be ever necessary, then is the proper time to perform it. But in general, as the separation of extra-uterine fœtuses from their involucra may occasion immediate death in many cases, in consequence of the vast hæmorrhagy that might

* *Vid.* Mangeti Bibliothec. Medicin.; Journal de Scavans; Memoirs de l'Acad. des Sciences; Chapman's Midwifery; London Medical Observations; Dr Duncan's Medical Commentaries, &c.

might enſue from the non-contractile power of the parts to which they adhere, unleſs they point outwardly, or excite violent ſymptoms, their expulſion ſhould be generally truſted to Nature.

Herniæ of the uterus are never ſufficient indications to induce us to perform the Cæſarean ſection, as the uterus is very rarely influenced in ſuch a manner that the orifice cannot be reached, and the delivery ſucceſsfully made. Many inſtances are to be found among Chirurgical authors, where deliveries, under ſuch circumſtances, have been happily performed, without recourſe having been had to ſo hazardous an expedient. MAURICEAU mentions a caſe, where the uterus in a ventral hernia was puſhed along with the inteſtines above the belly, and contained in a tumor of a prodigious ſize; the woman, however, was delivered at the end of her time in the ordinary way. M. LA MOTTE relates the hiſtory of a woman in a preternatural labour, whoſe uterus and child hung down pendulous to the middle of

of her thigh; but whom, notwithſtanding, he ſafely delivered. And Dr Ruysch relates a caſe, where the midwife reduced the hernia before delivery, although it was prolapſed as far as the knee; the delivery was ſafely performed, and the woman had a good recovery.

The Poſition or Bulk of the Child.—Since the practice of turning the child and delivering by the feet, and the late improvement of obſtetrical inſtruments, this operation has never been performed on account of poſition, monſtroſity, or any other obſtacle on the part of the child merely.

Defective Pelvis.—In diſcuſſing this reaſon, it is neceſſary to endeavour to aſcertain, firſt, the utmoſt degree of deficiency of ſpace in the pelvis, which admits the ſafe performance of the operation of embryulcia; and, ſecondly, whether there be greater degrees than theſe in women capable of becoming pregnant.

Firſt, The firſt accurate account of the operation

operation of embryulcia, having been accompliſhed in a very narrow pelvis, is contained in the hiſtory of a caſe where Dr Kellie operated.

The pelvis of the patient meaſured from the projection of the ſacrum to the ſymphyſis pubis, 1 inch $\frac{5}{8}$ths and $\frac{1}{10}$th; on the right-ſideof this ſtrait, $2\frac{1}{10}$ inches; on the left-ſide, $1\frac{1}{2}$ inch. The woman had been five days in ſtrong labour before Dr Kellie had an opportunity of ſeeing her. "The head remained above the brim of the pelvis; and had not then made the ſmalleſt progreſs. It was of a large ſize, firmly oſſified; and the parts in the paſſages were ſo extremely tender, that the poor woman, who was ſomewhat faint, and much fatigued by the protraction of labour, could not bear the moſt gentle examination without great pain." The Doctor proceeded to perform the operation of embryulcia, "by making a large opening in the cranium, which was effected with difficulty, on account of the head projecting ſo much over the pubes that the ſhank of the ſciſſars

ſciſſars was preſſed forcibly againſt the perinæum, to get the points in a proper direction." He now left the patient; and on returning, in 24 hours after, "found the head advanced into the pelvis ſo low, that the jagged end of one of the parietal bones preſſed againſt the inner part of the perinæum, very near the os externum. By the help of the blunt-hook only, the head was brought forth, in little more than a quarter of an hour, amazingly flattened." The ſhoulders and body gave conſiderable reſiſtance, but were alſo extracted with the blunt-hook.

The patient, who ſeemed to do well for a week, "having imprudently drank freely of raw porter, with ſome people who came to ſee her, was afterwards ſeized with a violent purging, of which ſhe died in three days*."

The caſe of Elizabeth Sherwood, however, on whom DR OSBORN operated, is ſtill more extraordinary. Her pelvis meaſured in the ſhort diameter, that is, from ſacrum

* Johnſon's Midwifery, p. 284.

crum to pubes, $\frac{3}{4}$ths of an inch.—On the left ſide, quite to the ilium, which was about $2\frac{1}{2}$ inches in length, the ſpace was certainly not wider; it was even thought to be narrower. On the right ſide, the aperture was rather more than two inches in length from the protuberance to the ilium; it was, at the utmoſt, about $1\frac{3}{4}$ inches from the hind to the fore part, but it became gradually narrower, both towards the ilium and towards the projection *. Yet, after the child's head had been opened thirty-ſix hours, the child was delivered; and on the *ſeventh day* the patient was as well as at any former period of her life †.

Experience has proved, that where ready acceſs is obtained for the admiſſion of the neceſſary inſtruments, the head of the child may, by the operation of embryotomy, be ſo diminiſhed, as that its baſis ſhall meaſure no more than an inch and a half when turned ſideways; and hence it may be concluded, that where there is a ſpace equal to an

* Oſborne loco citato, p. 75.

† Ibidem, p. 89.

an inch and an half in the most defective part of the pelvis, the extraction of the mangled infant is practicable.

But there is a material difference between the practicability and the safety of an operation.

It may, indeed, be alleged, that embryulcia has succeeded in cases where there was a deficiency of space to the above extent, and where the head of the child had been of the ordinary size. Allowing this, however, to be true, it ought not to be inferred, that in every case of similar deficiency the result would be equally fortunate.

To illustrate this it may be remarked, that in by far the greatest number of deformed pelvises, the narrowness is confined to the brim or outlet, and the cavity is much more shallow than usual. These are productive of two great advantages ; for the introduction and application of instruments is thereby facilitated ; and the resistance is confined to almost a single point But, in some cases, the deformity is extended to both brim and outlet ; and the cavity, instead of being more shallow, is deeper than natural.

Where

Where this happens, it muſt be exceedingly obvious, that although the ſhort diameter, both at brim and outlet, be equal to an inch and a half in extent, the danger attending the operation muſt be infinitely greater (admitting even that the neceſſary inſtruments can be uſed with ſafety), than if the deficiency were confined to either of theſe parts.

The following caſe, which occurred in the Edinburgh General Lying-in Hoſpital, affords a good illuſtration of theſe remarks.

Mrs Scott, out-patient, aged thirty years, imagined herſelf to be in labour on the evening of March 22d 1793; but her pains proved to be ſpurious. As her pelvis ſeemed to be remarkably deformed, a particular inquiry was made concerning every circumſtance of her previous hiſtory. From this it appeared that, at the time ſhe was married, namely, five years ago, ſhe was a healthy well formed woman; that ſhe continued in the ſame ſtate not only till ſhe had born one child, which is ſtill alive, but

alſo

alſo till ſhe was about three months advanced in her ſecond pregnancy, when ſhe became indiſpoſed, and was confined to bed for ſome time. In conſequence of this indiſpoſition, which ſhe attributed to expoſure to cold, ſhe loſt conſiderably in her ſtature, and felt a weakneſs in the lower extremities, ſo that ſhe was, in ſome degree, lame. She carried the child to the full time, and bore it with great difficulty. It was alive when born, but died in a few minutes. Although her general health was ſtill impaired, and the loſs of ſtature and degree of lameneſs continued to increaſe, ſhe again conceived; and, in July 1793, ſhe was, with great difficulty, delivered of a child at the full term, which, for a few minutes only, exhibited ſymptoms of life. Her recovery was, for ſome time, very doubtful, and eventually proved exceedingly tedious. About this time ſhe became troubled with umbilical hernia. Towards the end of June 1794 ſhe again conceived; but her health was ſtill worſe than before. She has now loſt ſo much of her ſtature,

 that

that ſhe conſiders herſelf to be one foot, at leaſt, diminiſhed in height; at the ſame time, her lameneſs has increaſed ſo much, within theſe four months, that ſhe is unable to move farther than from her bed to her chair; and, to accompliſh that, ſhe is under the neceſſity of ſupporting herſelf on her hands as ſhe moves along. She is incapable of ſtanding erect without ſomething to lean upon. Formerly ſhe could move by the aſſiſtance of crutches; but ſhe is no longer capable of doing ſo. As ſhe cannot lie in bed above a few hours, without being affected with violent coughing, whatever poſition ſhe aſſumes, ſhe is under the neceſſity of ſitting almoſt conſtantly in an eaſy chair. Having been troubled, during the winter, with violent pains in the ſhoulders, extending along the clavicles, the power of her arms has become ſo much impaired, that ſhe cannot even break a piece of bread. The appearance of her countenance is not very unhealthy, her complexion being tolerably good, and her eyes lively.

On the 24th March 1795, ſhe was brought into

into the hofpital. She continued in her ordinary ftate of health until three o'clock, A. M. of the 31ft, when real labour commenced. Within about two hours it was imagined that the membranes gave way fpontaneoufly, as a fmall quantity, of what was deemed liquor amnii, was difcharged. At four o'clock, A. M. the pains became very ftrong and frequent, and continued fo till fix o'clock, A. M. when they increafed prodigioufly, both in frequency and in force; for they recurred every minute, and were fo ftrong, that, during every pain, there was the greateft reafon to dread that the uterus would burft.

At this time fhe was examined with great care; and it was found that at the outlet, at the anterior part of the pelvis, the rami of the pubes and ifchia approached fo nearly, that it was with difficulty the fore-finger could be paffed between them. The fpinous proceffes of the ifchia, however, appeared about two inches diftant from each other, and pofteriorly, the point of the coccyx feemed, at leaft, two inches diftant

from the tuberoſities of the iſchia. At the brim there appeared ſo conſiderable a deformity, that it was not probable there was a greater ſpace between the bones than a triangle in the centre of the brim, each angle of which was diſtant about an inch and a half from the other; and, towards the ilia, the ſpace on each ſide was evidently narrower. No part of the child could be felt. There had been no evacuation from the bladder from three o'clock, A. M.; fifty drops of tinct. opii were immediately given, and an enema, containing ſixty drops of the ſame, was exhibited.

The uterine action, however, was not, in the ſmalleſt degree, altered, for the pains continued to recur with the ſame frequency and force; in conſequence of which the ſufferings of the patient were truly agonizing. In this ſituation matters remained till a quarter paſt ten, A. M. when the head was felt to preſs on the brim of the pelvis. At nine o'clock, A. M. the catheter was introduced, and about half a gill of urine was drawn off.

At

At a quarter paſt ten, A. M. a conſultation was held, and the circumſtances of the caſe taken into very mature conſideration. It was agreed to wait yet a few hours, in order to ſee whether the action of the uterus would force the head of the child lower.

About a quarter paſt eleven o'clock the pains ſuddenly ceaſed entirely. Vomiting took place. The pulſe, which had hitherto been very frequent, but firm, became feeble; her countenance turned pale and ghaſtly; and her ſtrength ſeemed very much exhauſted. She had no breathleſſneſs, and no diſcharge of blood from the vagina. The abdomen communicated to the hand a different ſenſation from what had been formerly experienced; but no inequalities, like thoſe proceeding from the limbs of a child, were felt. The abdomen was ſore to the touch. On examination, the head, covered with membranes, was found reſting upon the brim of the pelvis.

As it was hoped that the exhauſtion was the effect of her former ſufferings, it was expected that it would be temporary only;

 and,

and, therefore, it was determined to give gentle cordials, and to wait for a return of ſtrenth.

But at half paſt one o'clock, P. M. the ſymptoms of exhauſtion ſtill continuing, while, at the ſame time, the patient complained of pain and great ſoreneſs in the abdomen, it was judged neceſſary to attempt to open the head of the child, in order to extract it by the operation of embryulcia. For this purpoſe two fingers of the left hand were introduced along the ſacrum, in order to conduct the perforator to the head; but it was found that the pelvis was ſo deep behind, while the approximation of the iſchia prevented the introduction of the perforator at the anterior part of the pelvis, that the points of the fingers could juſt touch the ſcalp of the head. Nevertheleſs, the perforator was inſinuated along the fingers; but, on puſhing forward the inſtrument, the head inſtantly yielded before it, after which no part of the child could be felt. All attempts to deliver were then laid aſide.

From this period ſhe vomited conſtantly

every

every thing that ſhe ſwallowed ; her pulſe remained exceedingly frequent and feeble, and ſhe complained of great uneaſineſs over the abdomen. In the afternoon, about half an Engliſh point of urine was drawn off by the catheter.

As ſhe continued unable to retain any thing on her ſtomach, although a variety of cordials was tried, an enema, compoſed of beef-tea, was directed to be given every two hours. No uterine pains returned; but ſhe complained much of ſoreneſs and a moſt uneaſy ſenſation of fulneſs in the abdomen. She felt no diſpoſition whatever to ſleep ; ſhe could not be perſuaded to receive more than three beef-tea glyſters, on account of the great uneaſineſs in her belly.

In this ſituation ſhe remained during the whole night; and, on the morning of April 1ſt, ſhe appeared much in the ſame ſtate. At ten o'clock, A. M. ſhe paſſed naturally a little urine. From this time, what ſhe vomited was of a dark green colour, reſembling feculent matter. About two o'clock,

P. M. ſhe paſſed by ſtool ſome of the ſame matter.

In the afternoon there was no alteration in the ſymptoms, except that ſhe had a natural ſtool. Towards evening her extremities became cold; but her pulſe ſtill continued nearly the ſame as it had been for above thirty hours, namely, between 120 and 130, and very feeble.

At one o'clock, A. M. of the 2d, no pulſe could be felt at the wriſts; the uneaſineſs of the abdomen increaſed, and her reſpiration became hurried, ſo that her diſſolution ſeemed approaching. At ſix o'clock, A. M. ſhe grew ſomewhat eaſier, but there was ſtill no pulſation at the wriſts; her eyes continued lively, and ſhe was perfectly ſenſible, as ſhe had been all along. What ſhe now vomited was of a browniſh ſtercorous appearance.

At eight o'clock, A. M. ſhe expreſſed a wiſh to eat a ſoft-boiled egg, which was accordingly given; almoſt the whole of it remained on her ſtomach. Within leſs than a quarter of an hour ſhe cried out, that ſhe felt

felt herself growing blind; and, in two or three minutes, expired so gradually and so easily, that the exact moment of her death could not be ascertained. During this change, the hands were kept applied to the abdomen, to feel if the child exhibited any symptoms of life; but no motion whatever was felt.

Appearance on Dissection.

A very putrid smell issued from the body, which was opened thirteen hours after death.

Externally.—The abdomen was very much swelled, and, in the region of the umbilicus, a circumscribed elastic tumefaction appeared.

Abdomen.—On cutting into the abdomen, the swelling at the umbilicus was found to proceed from a quantity of air effused into the abdomen at that part. Immediately under the abdominal parietes, a considerable

confiderable quantity of extravafated blood appeared covering the anterior furface of the inteftines. This was found to have proceeded from the uterus, which was ruptured at the left fide. The rupture was in a longitudinal direction, was feated in the cervix, and extended apparently about four inches. The uterus itfelf was contracted fo much, that its length did not exceed fix and a half inches, nor its breadth five and a half. In the left fide of the belly, the fœtus appeared furrounded by inteftines. It was completely enveloped in its membranes. Thefe were every where in clofe contact with its body, which was placed in fuch a pofition as to occupy the leaft poffible fpace. The lobulated furface of the placenta formed on the right fide of the fœtus the external furface of the bag in which it was included. On opening the membranes, no liquor amnii was found. The child, which was a female, was in fuch a ftate of putridity, that the head was quite emphyfematous, and the parietal bones were greatly feparated from each other. One of

its

its feet was turned inwards, and had been ſo much compreſſed, that it retained its poſition, forming a club foot. It appeared that the perforator had penetrated only the external lamella of that portion of the membranes which was in contact with the head.

The following were the dimenſions of the pelvis: At the brim, from the centre of the ſacrum to the moſt diverging point of the pubes, $3\frac{1}{2}$ inches; from ditto to the part at which the pubes approximated, $2\frac{1}{4}$ inches; from the ſacrum to the linea innominata, at the top of the acetabulum, $1\frac{5}{8}$; therefore the ſhort diameter, at the brim, was, for the extent of an inch, $2\frac{1}{4}$ inches, but in the remainder of the ſpace only $1\frac{5}{8}$. At the outlet, the ſpace between the tuberoſities of the iſchia was $\frac{5}{8}$ of an inch. The ſpinous proceſſes of the iſchia were diſtant $3\frac{1}{6}$. The point of the coccyx, when drawn back, was diſtant from the junction of the iſchia $2\frac{1}{2}$ inches, and the ſame from the tuberoſity of the iſchium on the left ſide, but on the right ſide, it was half an inch leſs.

lefs. The depth of the pelvis, both anteriorly and pofteriorly, was $4\frac{1}{2}$ inches.

When the confultation was held, it appeared to be utterly impoffible to open the head with fafety, becaufe the depth of the pelvis at the anterior part, together with the narrownefs at the outlet, rendered it impoffible to introduce two fingers of the left hand to guard and direct the points of the perforator; without which much danger muft attend the ufe of that inftrument.

As it feemed exceedingly problematical how far it was juftifiable to deftroy the child, while the chance of the woman furviving the operation was rendered doubtful, from the great refiftance that would be experienced in making the extraction, another reafon for waiting was to afcertain, by the effects of the uterine action, whether the child might not be of an unufually fmall fize.

When the fituation of the patient became almoft hopelefs, it was judged more prudent to attempt the delivery by embry-

ulcia,

ulcia, than by the Cæſarian operation, becauſe the head ſeemed a little lower than formerly, and no deciſive evidence of the child being alive had occurred even for a day before labour commenced.

Although there was every probability that the uterus had burſt, yet the pathognomonic ſymptoms being abſent, precluded an abſolute certainty of that event.

The appearances on diſſection explained this circumſtance, as the liquor amnii had been entirely abſorbed, and the membranes enveloped very cloſely the whole of the child, ſo that its limbs, not being diſengaged, could not be felt through the parietes of the abdomen.

It may, therefore, be concluded that, in ſome ſpecies of defective pelvis, although the apertures be ſuch as to be capable of allowing the mangled child to be extracted through them, it is impoſſible to diminiſh the head ſufficiently with ſafety, or, that being accompliſhed, the extraction would

would be productive of injury ſuch as to cauſe death.

In confirmation of this latter propoſition, it may be remarked, that where the operation of embryulcia has been performed, in caſes of extreme deformity of the pelvis, it has moſt commonly been ſucceeded by the death of the woman; for every ſuch caſe where this event has not happened, may be regarded as an exception to the general rule.

This aſſertion may, perhaps, be controverted, and in oppoſition it may be ſtated, that an infinitely greater proportion of the women, on whom the operation in queſtion is practiſed, recover entirely than die. The fact cannot be denied; but it is preſumed that it does not alter the ſtate of the queſtion; for the operation of embryulcia is much more frequently performed, where there is only a ſlight deficiency of ſpace, and even where the deficiency is temporary only, ſubſiding after the preſſure is taken off by the contents of the head being diſcharged,

charged, than where the capacity of the apertures is extremely diminiſhed.

Secondly. That women, in whom the pelvis is ſo deficient as to be incapable of permitting the extraction of the infant by the operation of embryulcia, can become pregnant, has been called in queſtion by DR OSBORN; and yet in the hiſtory of two caſes, where the Cæſarian operation was performed in London, the moſt unequivocal teſtimony of the fact is afforded. The pelvis of the one woman, viz. of her whoſe caſe is related by DR COOPER and MR THOMSON, in the 4th vol. of the London Medical Eſſays and Inquiries, meaſured only $\frac{7}{8}$ of an inch from the projecting part of the ſacrum to the oppoſite ſymphyſis pubis. In the pelvis of the other, whoſe caſe is detailed by DR COOPER in the 5th vol. of the ſame Eſſays, the greateſt extent of the ſhort diameter at the brim did not exceed $1\frac{1}{4}$, and, on each ſide of the ſacrum, the ſpace gradually became much narrower, till it terminated in a ſmall point.

In a pelvis in my poſſeſſion, being that of

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a woman on whom DR YOUNG, late Professor of Midwifery in this University, performed the Cæsarian operation, the short diameter at the brim does not measure above $1\frac{3}{4}$ inches at one side; the bones of the pubes are bent, and refuse admittance to a finger at the arch; the sacrum is convex anteriorly; the anchylosed coccyx is unciform, and the distance from it to the tuberosities of the ischia is somewhat less than $1\frac{3}{4}$ inches.

The construction of the pelvis in the woman on whom Dr James Hamilton, jun. lately performed the Cæsarian operation, was still more unfavourable. The brim formed nearly a triangular figure, in consequence of the pubes at their junction with the ilium on each side projecting forwards so much that the angles, constituting the junctions, were distant only $\frac{6}{8}$ of an inch. The following were the dimensions at the brim.

From sacrum to pubes, at the most diverging point, $3\frac{1}{2}$ inches; to the angle formed by the pubes at the left side, $1\frac{6}{8}$; at the right side, $2\frac{1}{8}$.—Distance between the angles,

gles, formed by the pubis, $\frac{6}{8}$.—From the posterior to the anterior part, on the left side, at half an inch from the angle formed by the pubes, the distance was $1\frac{5}{8}$; at an inch, $1\frac{1}{2}$; and at an inch and an half, $1\frac{3}{8}$.—On the right side, at half an inch from the angle formed by the pubes, it was 2, at an inch, $1\frac{6}{8}$; and at an inch and an half, $1\frac{7}{8}$;—The long or transverse diameter was $4\frac{1}{2}$.—The distance between the inner edges of the thigh sockets was $2\frac{7}{8}$.

From the point of the coccyx to the middle of the tuberosity of the ischium on the left side, $2\frac{3}{8}$ inches; on the right side, $2\frac{1}{4}$. From the same point to the centre of the arch of the pubis, $4\frac{3}{4}$.—Distance between the tuberosities of the ischia at the middle, 2.—Distance between the rami of the ischia, at their greatest approximation, $\frac{1}{2}$.

The depth of the cavity was anteriorly $4\frac{5}{8}$; and posterioly 5 inches.

Since, therefore, there can be no doubt that, in some cases, the apertures of the pelvis are not sufficient to allow the extraction of the child by the operation of embryul-

cia, and that women, with ſuch conformations of pelvis, are capable of becoming pregnant, it is obvious that the Cæſarian ſection is not an operation of choice, but of abſolute neceſſity; for it is the duty of the practitioner to endeavour to ſave at leaſt one life.

Although few practitioners will agree with DR OSBORN, that the child in utero is deſtitute of the power of feeling, yet a principle laid down by him will not, it is apprehended, be controverted, viz. that where it is abſolutely impoſſible to employ ſuch means as ſhall ſave both infant and mother, the life of the former ought to be ſacrificed to the more valuable one of the latter. But, in the caſes under conſideration, the ſacrifice of the child cannot be beneficial to the parent, and conſequently, unleſs the Cæſarian operation be performed, both lives muſt be loſt.

For theſe reaſons, this operation would be juſtifiable, even although the opinion of ſome reſpectable practitioners, that wounds in the uterus invariably prove fatal, were well

well founded. This idea, however, is merely prejudice; for there can be no doubt that women have ſurvived not only lacerations of the uterus but alſo the Cæſarian operation.

That the ſucceſs of this operation has been greatly exaggerated muſt be confeſſed; but it is not to be inferred from thence that in no caſe has the event been fortunate, becauſe the contrary can be proved by the moſt unqueſtionable evidence.

Thus, notwithſtanding the declamation of ſome eminent authors, the Cæſarian operation cannot be entirely baniſhed from practice. Did caſes requiring it occur frequently, the duty of a practitioner of midwifery would be diſagreeable beyond meaſure. But it fortunately happens, that ſuch caſes are exceedingly rare; and that one may practiſe for a vaſt number of years, even in a very populous neighbourhood, without meeting with a patient whoſe pelvis is ſo much deformed.

Having eſtabliſhed the general principle that this operation is on ſome occaſions ab-

ſolutely inevitable, it would be uſeful if we could aſcertain the preciſe circumſtances under which it ought to be had recourſe to; but the ſpecies of deformity of the pelvis are ſo exceedingly numerous and various, that it would lead to diſcuſſions inconſiſtent with the nature of this work to enumerate them.

Where the dimenſions of the pelvis abſolutely prevent the poſſibility of extracting the infant, by the operation of embryotomy, there can be no doubt, as already ſtated, that the Cæſarian operation is indiſpenſable; but it may be queſtioned, whether, in thoſe degrees of deformity which barely render the extraction of the mangled child practicable by a very ſkilful operator, the patient could ſurvive the violence produced by the means employed.

It may be proper perhaps to ſtate the general reſult of this operation in Great Britain, in order to inculcate the neceſſity of never having recourſe to it except from a conviction of the utter impoſſibility of otherwiſe

otherwise saving one of the two lives committed to our charge.

In Great Britain, the operation has never yet proved successful in saving the life of the mother, although it has been performed thirteen or fourteen times. In Edinburgh it has been six times had recourse to, viz. twice by DR YOUNG, once by MR R. SMITH, once by MR ALEXANDER WOOD, and once by MR CHALMER, surgeons, and once by DR JAMES HAMILTON, junior.

As the histories of the operation, hitherto on record, do not appear to me to contain the ample information which would be required by one compelled to perform it, I have inserted the cases of the patients on whom my late friend MR CHALMER and my son, DR JAMES HAMILTON, junior, operated. The former has been already detailed in the other editions of this work.

CASE FIRST.

ELIZABETH CLERK, aged thirty, had

been married for ſeveral years, became pregnant, and miſcarried in the third month; the expulſion of the abortion occaſioned ſo ſevere a ſtreſs, as actually to lacerate the perinæum. Some time after her recovery, ſhe was irregular; afterwards had one ſhow of the menſes; again conceived; and the child, as ſhe imagined, arrived at full time. She was attacked, on Monday the 3d January 1774, about midnight, with labour-pains; which went on ſlowly, gradually increaſing till Saturday the 15th, when ſhe was brought from the country to the Royal Infirmary here. Upon examination, the pelvis ſeemed conſiderably diſtorted; but the body was otherwiſe well ſhaped, though of ſmall ſize. The os externum vaginæ was entirely ſhut up; nor could any veſtige of vagina be obſerved, nor any appearance of labia pudendorum: inſtead of theſe, there was a ſmall aperture at the ſuperior part of the vulva, immediately under the mons veneris, probably about the middle interior part of the ſymphyſis pubis. This aperture (which had a ſmall proceſs

procefs on the fuperior part, fomewhat refembling the clitoris) was no larger than juft to allow the introduction of a finger; the meatus urinarius lay concealed within it. A confultation of Surgeons was called, and the Cæfarian fection was determined on. Having had no ftool, nor voided any urine for two days, an injection was attempted to be thrown up; but it did not pafs, nor was it poffible to pufh the female catheter into the bladder. At fix in the evening, the operator made an incifion on the left fide of the abdomen in the ordinary way, through the integuments, till the peritonæum was expofed: two fmall arteries fprung, which were foon ftopped by a flight compreffion: the wound was then continued through the peritonæum into the cavity of the abdomen; when the bladder appeared flightly inflamed, and much diftended, reaching with its fundus near as far as the fcrobiculus cordis. Another unfuccefsful attempt was made to pafs the female catheter: at length a male catheter was procured, which was, after fome difficulty, introdu-

ced into the bladder; and the urine evacuated to the quantity of above four pounds, high ſmelled and fetid. This occaſioned a neceſſary interruption, for a few minutes, between making the opening into the abdomen and uterus: the bladder collapſing, the uterus, which before lay concealed, now came in view; through which an inciſion was made, and a ſtout male child was extracted alive, followed immediately by the ſecundines. The uterus contracted rapidly. After cleanſing the wound, the lips were brought together by the quill-ſuture, and dreſſed ſuperficially. The patient ſupported the operation with ſurpriſing courage and reſolution; and no more than five or ſix ounces of blood were loſt on the occaſion.

Being laid in bed, ſhe complained of ſickneſs, and had a ſlight fit of vomiting; but, by means of an anodyne, theſe ſymptoms ſoon abated. She was affected with univerſal coldneſs over her body; which alſo abated, on the application of warm irons to the feet. She then became eaſy, and

and ſlept for four or five hours. Next morning, the 16th, about two o'clock, ſhe complained of conſiderable pain in the oppoſite ſide: for which ſhe was blooded, and an injection was given, but without effect; for the pain i reaſed, ſtretching from the right ſide to the ſcrobiculus cordis; nor did fomentations ſeem to relieve her; her pulſe became frequent, ſhe was hot, and complained of thirſt. At 7 A. M. the injection was repeated, but with no better ſucceſs, and eight ounces more of blood were taken from the arm. A third injection ſtill failed to evacuate any fæces; the thirſt increaſed; and the pulſe roſe to 128 ſtrokes in a minute. At 11 A. M. the pulſe became fuller, and the reſpiration much oppreſſed. No ſtool nor urine paſſed ſince the operation. At 12 ſhe was blooded again, when the ſizineſs appeared leſs than formerly. She now took a ſolution of ſal Glauberi, manna, and cr. tart. at ſhort

intervals;

N. B. From the inaccuracy of the Clerk of the Infirmary, from whom the outlines of the caſe were received, an extraordinary blooding, mentioned in the Elements of Midwifery, was related by miſtake.

intervals; ſhe vomited a little after the laſt doſe; had a ſoft ſtool, and voided a ſmall quantity of urine. At 3 P. M. her pulſe was 136; and ſhe had another ſtool, when thin fæces were evacuated: ſhe was then ordered two ſpoonsful of a cordial anodyne mixture every ſecond hour. The vomiting now abated; the pulſe became ſmaller and more frequent: ſhe paſſed urine freely; but the pain and oppreſſed breathing increaſed. At 7 P. M. her pulſe roſe to 142, and became weak and fluttering; ſhe called for bread, and ſwallowed a little with ſome difficulty; her thirſt was intenſe; the dyſpnœa ſtill increaſed. She was now much oppreſſed, began to toſs; the pulſe ſunk, and became imperceptible: ſhe complained of faintiſhneſs; but on belching wind, her breathing was relieved, and the pulſe returned, growing fuller and ſtronger. The pain of the ſide ſtill increaſed; two glyſters of warm water with oil were then injected without effect. At 8 P. M. the pulſe became leſs frequent and ſmaller; ſhe complained much of the pain towards the ſcro-

biculus

biculus cordis ; her breathing was much oppreſſed ; her belly was tenſe, and ſwelled as big as before the operation ; her pulſe was now ſmall and feeble ; ſhe looked ghaſtly, and expired a little after eight, twenty-ſix hours after the operation.

It is to be regretted that the relations would not permit the body to be opened.

Case Second.

Jean Douglass, aged 34 years, having, according to her own account, arrived at the full period of utero geſtation, became in labour at 8 o'clock A. M. of June 27. 1795, after having been for three preceding nights ſo much diſtreſſed with ſpurious pains as to be totally deprived of ſleep. Soon after the commencement of labour ſhe had a natural ſtool.

The uterine pains continued to recur during the courſe of the day, at ſhort, though irregular, intervals, till midnight, when the membranes ſpontaneouſly gave, way,

way, and a quantity of liquor amnii was difcharged.

From about this period fhe was attended by an experienced midwife, who having found, that notwithftanding very frequent, ftrong, and forcing pains, no part of the child whatever could be felt, fent for extraordinary affiftance at 9 o'clock P. M. of June 28.

At that time the labour throes continued to be ftrong and frequent. The patient feemed much exhaufted; her abdomen was exceedingly tenfe and painful to the touch; and her pulfe fmall and about 112. She had lately had a fhivering fit, which lafted for a confiderable time. She had no fuppreffion of urine. Meconium was obferved on the cloths after every pain. On introducing two fingers, for the purpofe of afcertaining the progrefs of labour, fhe complained very much of pain in the parts. As the pelvis appeared greatly deformed, particular care was taken to afcertain its dimenfions accurately. It was found that the outlet was fo exceedingly deficient in fpace, as to prevent the introduction of more

more than two fingers; and, at the ſame time, the tuberoſities and the rami of the iſchia approximated ſo much as to render the pelvis very deep anteriorly, ſo that it ſeemed almoſt impracticable to meaſure, with any preciſion, the dimenſions at the brim. At laſt, however, with exceſſive difficulty, and not without occaſioning conſiderable pain, the fingers were carried as high as the linea innominata. The os tincæ was felt in the centre of the brim, capable of admitting eaſily the introduction of one finger but not of two, and apparently as much dilated as the ſtate of the pelvis would permit. The brim ſeemed of a triangular form, from the approximation of the pubes towards their junction with the ilia. On the left ſide, it was evidently incapable of admitting the paſſage of more than one finger; but on the right ſide, the deficiency was not ſo conſiderable. The ſoft parts lining the pubis were obviouſly ſwelled. No part of the child could be felt, although the pains were ſtrong.

The previous hiſtory of the patient being

ing now inquired into, the following particulars were learned.

She had been about twelve years married, for ſome time had enjoyed uninterrupted good health, and during that period had born, without any uncommon difficulty, three living children. But while nurſing the third child, ſhe was affected with rheumatic pains, in conſequence of which ſhe was for many months confined to bed. Having at laſt recovered her ſtrength ſo far as to be able to riſe, ſhe continued for a long time lame, being forced to make uſe of a ſtaff to ſupport herſelf in walking. In this ſtate of health, ſhe again conceived, and carried the child to the full time. Her labour was preternatural, and ſhe was delivered with ſuch difficulty, that the continued exertions, for many hours, of two country practitioners were, according to her account, employed before the delivery was accompliſhed. The infant was ſtill born. Her recovery was exceedingly tedious, for ſhe was confined to bed above

three

three months, during which time the rheumatic pains diſtreſſed her very much.

At the diſtance of about twelve months, from this period, ſhe became pregnant of the child ſhe now carries. During the early months of geſtation, ſhe was much indiſpoſed, but after quickening, ſhe felt herſelf conſiderably better, which ſhe imputes to the uſe of certain pills received from an empiric.

Having been much ſubject to the heartburn, ſhe was adviſed to ſwallow common chalk, which has now become a habit, ſo that for theſe ſix years ſhe has ſwallowed, on an average, half a pound of chalk weekly.

Her ſtature does not ſeem much diminiſhed, nor is her look very unhealthy, although her complexion is ſallow.

Having been perſuaded to accept of an apartment in the Edinburgh General Lying-in Hoſpital, ſhe was brought into it about half paſt 10 o'clock P. M. of June 28.

Immediately on her admiſſion, ſhe took a draught containing 30 drops of tinct. opii.

and

and an enema compofed of mucilage of ftarch, with 80 drops of the fame, was exhibited. It had been learned, that about three hours before fhe had taken 35 drops of that medicine.

The uterine pains having foon after this ceafed, fhe laid herfelf for reft.

At 1 o'clock A. M. of the 29th, fhe was interrupted from a ftate of fleep, in which fhe had been for a little time, by a violent fit of fhivering that continued for nearly an hour, but was not fucceeded by any confiderable degree of heat. After this, fhe fell quiet, but was again difturbed by another fit of fhivering about a quarter before four o'clock A. M. which did not laft fo long as the former, and, like it, was not followed by exceffive heat.

From this time fhe continued to flumber till about 8 o'clock A. M. when fhe expreffed a defire to have fome food. She took fome tea and bread for breakfaft.

At 9 o'clock, the rigors again recurred, but were of fhort duration.

At 10 o'clock A. M. a consultation was held. The state of the pelvis was then again carefully examined, and every circumstance of the case was taken into mature consideration. The result of this was a conviction that the dimensions of the pelvis were such as to render it impracticable to extract the child through that cavity, even although it were within reach, which it was not found to be, and that there was no other resource than the Cæsarian section.

Some time elapsed before the consent of the patient and her friends could be obtained. During that period, a common laxative enema was exhibited, but it was discharged without having occasioned a stool. As a quantity of urine was passed along with the enema, the use of the catheter was not required.

At a quarter past two o'clock P. M. the operation was begun. The patient was placed in bed half sitting and half lying, with an assistant supporting her back, as the tension of the belly impeded her respiration so much that she could not lie in the ho-

rizontal poſture. On the right ſide of the abdomen, about two inches above, and an inch and an half to the ſide of the umbilicus, an inciſion was made extending downwards in a ſtraight line for the ſpace of ſix inches. The knife, a common convex edged ſcalpel, was carried nearly at once down to the peritonæum. No apparent muſcular fibres intervened except towards the inferior extremity of the wound, and no active arterial branch was cut through. The peritonæum being then divided by means of a probe-pointed biſtory, the uterus came into view. While an aſſiſtant on each ſide held down the parietes of the abdomen, a ſmall opening was made into the uterus at the upper part, into which the fore-finger of the left hand, and the probe-pointed biſtory were introduced, and the wound in the uterus was thereby enlarged to the extent of that in the abdomen. A quantity of liquor amnii was immediately diſcharged, and then the edge of the placenta and the right ſide of the infant, its elbow being at the ſuperior part of the wound, were ſeen

ſeen to preſent at the opening. This poſition of the child, together with its large ſize, rendered its extraction difficult, but at laſt one foot having been taken hold of, the whole uterine contents were removed; the placenta and membrane following inſtantly the body of the child. The hand was immediately introduced through the opening into the uterus, and a coagulum of blood, which was found to plug up the os tincæ, was puſhed down. Before any attempts were made to cloſe the external wound, the uterus was allowed to contract as much as poſſible, during which period about a pound and an half of blood were diſcharged. The divided partietes of the abdomen were then brought together, by means of the interrupted ſuture and of adheſive plaſters. Five ligatures were required. As the lower portion of the omentum was forced out at the upper part of the wound, a doſſil of charpee was inſinuated between the teguments and the ligatures of the upper ſtitches. A portion of the inteſtinal canal, which was protru-

ded at the lower part of the opening, was eaſily reduced, and was kept ſo without any difficulty. The wound was now covered with lint, and a gentle degree of compreſſion was made on the abdomen, by means of a broad bandage. During the operation, which was completed within a few minutes, the patient made no complaint whatever.

As the cuticle was peeling off, and it was obviouſly in a putrid ſtate, no attempts were made to reſtore life to the infant, which was of the male ſex, well formed, and weighed lb. vijſs. A conical tumour was obſerved on its head, which had been evidently formed by the action of the uterus forcing it againſt the brim of the pelvis.

AFTER-TREATMENT.

June 29*th*. Immediately after the operation deliquium took place. From this ſhe recovered gradually, and then ſwallowed a little wine and water, ſome of which ſhe

ſhe had alſo taken previous to the operation. Soon after this ſhe became affected with ſhivering, which continued for a quarter of an hour.

Three o'clock P. M. Feels herſelf now eaſy; and ſays that ſhe ſuffers much leſs than ſhe did after her laſt delivery. Pulſe 120 and ſoft: tongue clean: ſkin of the natural temperature: appearance of the countenance favourable.

Capt. Stat. Tinct. Opii. gtt. xxx.

Five o'clock P. M. Has continued in the ſame ſtate ſince the preceding report. Has taken a good deal of wine and water and of beef tea, in ſmall quantities at a time, but complains of a trifling degree of heartburn, which ſhe attributes to the wine.

R. Spt. Ammon. Arom. ʒi
Sacch. Alb. ʒij
Aq. Callid. ℥viij. *M.*
Capt. hujus et Juris bovini alternis vicibus ℥i omni ſemi hora.

Nine o'clock P. M. Continues nearly in the ſame ſtate, except that ſhe complains of a ſmarting ſenſation of pain in the wound. Has taken regularly the beef tea and the cordial as directed. Made water naturally about ſix o'clock P. M. Has little or no diſcharge from the parts.

Capt. Stat. opii puri gr. iſs.
Cont. Remed. Cætera.

Midnight. No alteration in any reſpect has taken place, but has had no ſleep ſince the operation, and ſeems at preſent to have very little diſpoſition to that ſtate.

Foveantur Statim Pedes more ſolito per ſemi horæ ſpatium.

June 30. *Half paſt one o'clock A. M.* Has for about half an hour complained much of pain throughout the belly, which, together with uneaſineſs in breathing, oppreſſes her ſo much that ſhe moans conſtantly. Has a ſmall degree of nauſea, attended with a diſpoſition to belch, in attempting which ſhe has two or three times ſpouted

ſpouted out a mouthful of a dark green coloured fluid. She appears alſo to talk ſomewhat incoherently, and is ſo reſtleſs that ſhe firſt turned herſelf on the wounded ſide, then ſat erect, and is now with great difficulty perſuaded to lie in the proper poſture. Pulſe 148, and more feeble than at laſt report.

> *R.* Fol. Nicotian. ʒij
> Aq. Bullient. ℥xij
> Infund. per ſpat. viginti minut. dein
> Colat. ft. Enem. Statim injiciend.

Half paſt two o'clock A. M. For a few minutes after the exhibition of the enema, ſhe was exceedingly languid, and her pulſe grew ſo quick and ſmall that it could not be numbered. From this ſtate ſhe gradually recovered, ſo that now her pulſe is 120 and firm, her breathing eaſy, the pain in the abdomen has ceaſed, ſhe no longer moans, nor talks incoherently, and ſhe ſeems much inclined to ſleep. A little diſcharge appears from the vagina. During the ſtate of languor, ſhe twice took a ſmall tea ſpoon-

ful of ſpt. ammon. arom. in a cup of warm water in which a little ſugar was diſſolved.

Six o'clock A. M. Slept ſoundly for half an hour after laſt report; then paſſed the enema, and at the ſame time a quantity of urine, but no fæces. At half paſt four o'clock A. M. ſhe relapſed into nearly her former languid ſtate, her pulſe becoming again quick and ſmall. From this ſhe gradually recovered, the ſpt. ammon. arom. diluted having been twice repeated. From that period, ſhe has continued pretty eaſy, and has ſlumbered much. Pulſe 116, and ſoft: tongue pretty clean: ſkin natural, or nearly ſo.

Nine o'clock A. M. Having expreſſed a wiſh for breakfaſt, ſhe drank ſome tea, and ate two conſiderable portions of thin ſliced toaſted bread, holding the bread in her hand. A little after this, ſhe made water naturally, and it was found that there had been a conſiderable diſcharge per vaginum.

Eleven

Eleven o'clock A. M. It having been found neceſſary to ſhift her bed and body linens, that proceſs was conducted with great caution about ten o'clock. She did not complain of having ſuffered any fatigue in conſequence, and expreſſed herſelf to be in a much more comfortable ſituation than before. Although ſhe ſtill feels a painful ſenſation in the wound, yet ſhe thinks herſelf, on the whole, pretty eaſy: Pulſe 112, ſoft, and regular in the pulſations: tongue clean: has no thirſt: ſkin natural.

Two o'clock P. M. Having complained of heartburn about mid-day, ſhe had a tea ſpoonful of magneſia mixed with water, after which ſhe continued in the ſame ſtate as at laſt report, till within this half hour that ſhe has become exceedingly uneaſy from pain in the abdomen; her breathing is affected as in the morning; her pulſe is irregular and quick; and ſhe expreſſes a great deſire to ſit in the erect poſture, or to turn on the wounded ſide.

Repet. Statim. Enem. ex Infuſ. Nicotian.

Five

Five o'clock P.M. Immediately after the exhibition of the enema, ſhe inſiſted upon being raiſed up, in order to paſs water, but nothing elſe than the enema was diſcharged. On lying down, ſhe ſaid that ſhe was faintiſh, and that ſhe ſhould not again, for ſome time, deſire to ſit up. She then complained of nauſea; and, while attempting to ſwallow ſome of her cordial mixture, ſhe ejected, without any retching, a conſiderable quantity of browniſh coloured fluid; immediately after which ſhe became ſuddenly delirious, and has continued ever ſince to be quite unmanageable.

Adhibeatur ſtatim. Tinct. Op. gtt. xl.

Seven o'clock P. M. Advantage was taken of an interval of calmneſs that occurred about half an hour after laſt report, to examine the ſtate of the wound The dreſſings (which emitted a moſt diſagreeable fetor) having been removed, the lower part of the wound appeared black; and under the parietes of the abdomen, from the ſecond

ſecond lower ſtitch, for about three inches towards the ſide, a crepitation was diſtinctly perceived; an emollient poultice was now laid over the wound.

Half paſt nine o'clock P. M. Soon after laſt report, her pulſe became imperceptible; coldneſs of the extremities took place; and a clammy ſweat broke out on the neck and breaſt. In this ſituation ſhe continued, being ſometimes outrageouſly delirious and ſometimes quite calm, till a quarter paſt nine o'clock P. M. when ſhe expired, almoſt without a ſtruggle.

Appearances on Diſſection.

The body was opened about twenty-four hours after death.

Externally.—The abdomen was conſiderably tumefied.

Abdomen.—The belly having been opened in the uſual manner, the firſt circum-

ſtance

ſtance that appeared was the lower edge of the omentum protruded without the lips of the wound, between the third and fourth ſtitches. The omentum itſelf, although not ſtrictly in the natural ſtate, did not ſeem materially altered. On its being removed, two or three coagula of blood, the weight of which could not exceed three ounces, were obſerved on the outſide of the inteſtines. The ſtomach, much diſtended, came next into view; it contained little elſe than air, and ſeemed to have occaſioned the tumefaction of the belly. Pretty broad patches, of a florid red colour, on the external ſurface of the inteſtines, contiguous to the wound, indicated a ſlight ſuperficial inflammation of theſe parts. In the colon, a conſiderable quantity of hardened fæces was found. The uterus was not ſo much contracted as might have been expected, ſeeing that it meaſured in length nine inches. Although quite flabby, in conſequence of which the edges of the wound in its parietes were not in cloſe contact, no effuſion had taken place from it into the cavity of the abdomen,

abdomen, unleſs the coagula, already mentioned, be regarded as ſuch. The divided portion lay about three inches to the left ſide of the abdominal wound. The ſubſtance of the uterus had the natural colour, except at the anterior part, where its external ſurface was of a ſomewhat darker colour than uſual. The urinary bladder was quite ſound. It occupied the angle formed by the projection of the pubes, at the brim of the pelvis. The parietes of the abdomen were found, both externally and internally, except for a ſpace extending, in one direction, from the ſecond loweſt ſtitch to the linea innominata, and, in the other, from an inch and an half on the left ſide to three inches on the right ſide of the wound. That portion was livid both on its external and internal ſurface. It was thickened, particularly at the lower part, and contained an effuſed fluid, ſimilar to that ſeen in gangrenous parts of the ſame ſtructure. The edges of the wound exhibited no marks of the adheſive inflammation.

The

The dimenſions of the pelvis have been already ſtated.

For the reaſons already offered, the conduct of the practitioner, in determining on this operatien, is not to be directed by the general event of the caſes in which it has been had recourſe to in this country. That conſideration ought only to influence him ſo far as to prevent his deciding on the neceſſity of the operation, until he has weighed deliberately every circumſtance of the caſe.

With reſpect to the method of performing the operation, various propoſals have been ſuggeſted. To the author of this work, the method directed by DR MONRO ſeems the beſt; and, therefore, in the former editions of this work, he inſerted the following account, with which he was favoured by the DOCTOR himſelf.

"WE ought ſtrictly to examine the ſtate of the bones and of the ſoft parts, leſt we imagine that the bones prevent the delivery, when, perhaps, the ſoft parts only may be in

in the fault. We may alſo preſume, that there is a ſufficient wideneſs in the bones of the pelvis, if the patient is not obſerved to have deformity in the other parts of the body; as a deformity rarely occurs in the pelvis without rickets or a curvature in the ſpine, though, in a few caſes, this may happen. But after all theſe circumſtances have been attended to, and the operation is determined, next let us conſider the proper ſteps to be taken in it.

"We firſt empty the inteſtines, the rectum, and veſica urinaria, that the patient may not be diſturbed ſoon after the operation, and that the ſize of the bladder may not interrupt it. We then lay the patient in a horizontal poſture, that the inteſtines be not puſhed down between the abdominal integuments and uterus. In making the inciſion, we muſt avoid the large arteries in the containing parts. If it were to be extended far outwards, conſiderable branches of the circumflex might be divided; if inwards, the epigaſtric: ſo the beſt place is between the recti muſcles, or upon the outſide of the

rectus.

rectus. The laſt place is moſt frequently preferred, and we there readily get into the uterus. By this means, indeed, the uterus muſt be divided towards its ſide, where the veſſels enter and are moſt conſiderable; but we chooſe the outſide of the rectus, becauſe of the veſica urinaria being in danger of contracting inflammation from the inciſion. Except the danger of wounding the ſmall turns of the inteſtines, there is no great difficulty in performing the operation; yet ſeveral cautions are to be obſerved. Operators have not been aware of the cauſes of the danger; and we have more favourable accounts of the operation than we ought to have. We ſhall find in practice, that we ſhall be more frequently diſappointed than we would imagine from the reports of authors, who have only mentioned the fortunate caſes. In this city, the operation has been performed five times, and always without ſucceſs; though ſome of the women, before the operation, were in ordinary health. The great danger, I am perſuaded, ariſes from the admiſſion of the air, as well as from

from the parts divided; and I have repeatedly found, in making experiments upon animals, that if the air were let in upon the abdominal bowels for a few minutes, without any farther injury, the animal often dies, and always recovers with the utmoſt difficulty: And this ſtill more readily happens, if a conſiderable quantity of red blood be extravaſated within the cavity, which produces a moſt violent inflammation. Therefore the ſurgeon is not to go at once into the cavity of the abdomen; but ſhould firſt divide the ſkin and muſcles, and leave the peritonæum entire, until the bleeding from the veſſels has entirely ceaſed: the danger in that way, I find, is very much leſſened. We then open the peritonæum, making firſt a ſmall inciſion, and obſerve if the uterus is contiguous; if it is, we divide it with caution; and the aſſiſtant, by making a moderate preſſure, hinders the air from getting into the general cavity of the abdomen. The diſcharge of blood from the uterus is ſmaller than we would expect. We then cut the membranes, ſeparate the placenta to extract

 the

the fœtus, difcharge the waters; and, as foon as the fœtus and fecundines are removed, the uterus contracts of itfelf. Then let the furgeon pafs his hand into the cavity of the uterus, and, with one or two fingers, open the os uteri, that the blood, naturally difcharging into the cavity of the uterus from the wound, may pafs readily out by the vagina. We then fhut the wound; and, inftead of leaving an opening for the difcharge of matter, we truft to abforption; for I conftantly find, that a very clofe future contributes to the cure: fo I would few the containing parts of the abdomen with the glover's ftitch, or interrupted futures at $\frac{3}{4}$ths of an inch diftance, making the needles pafs through the fkin and part of the mufcles, but not within the cavity, leaving the peritonæum entire; or, if there is a confiderable effufion of blood and water, let us ftitch all but the under part, introduce into it a foft tent, and cover the whole with a compref. The patient is to be kept on a ftrict antiphlogiftic regimen during the cure."

§ 3.

§ 3. *Of the Division of the Symphysis Pubis.*

M. Sigault is entitled to the honour of having first proposed, and successfully performed, this operation. M. Le Roy, however, one of the most eminent teachers and practitioners of midwifery in France, who divided the honour with M. Sigault, deserves also to be here mentioned. He was presented, at the same time, with a medal from the Faculty of Paris; introduced, along with M. Sigault, to the king; assisted personally at the operation; and first published an account of it.

But although the success of a few cases shows, that the articulation at the cartilaginous *symphysis pubis* is capable of division, by incision, with safety to the patient, tearing the bones forcibly asunder by violent extension of the thighs, till they are so widely separated as to procure a considerable increase in the dimensions of the pelvis, must be a precarious and hazardous operation; precarious, in affording sufficient

ſpace to admit of the extraction of a living child, where the pelvis is conſiderably contracted from diſtortion; and hazardous, in its conſequences to the mother, where much force has been employed, either to obtain a ſeparation of the bones, or afterwards to accompliſh the delivery, where there is conſiderable reſiſtance to the extraction of the fœtus.

This is ſufficiently proved from the event of ſeveral caſes, particularly of two hiſtories related in an inaugural diſſertation by Dr Bently *, where this operation was performed on the living body; the one by Professor Siebold, of the Univerſity of Wurtzburg, in February 1778, the other by Dr Guerard, profeſſor of anatomy at Duſſeldorpe, in May following.

In the former, little ſpace, not more than a finger's breadth, after the utmoſt force that could be ſafely applied, was procured; and a dead child was with difficulty extracted. Fever enſued after the operation, urine for

* Publiſhed at Straſburg, 1779. See Edinburgh Medical Commentaries, Part iii. for the year 1780.

for ſeveral weeks paſſed by the wound; the bones exfoliated; and the patient recovered with difficulty.

In the latter caſe, though the bones of the pubes were ſeparated fully an inch and a half from one another, the advantage obtained by it was ſo immaterial, that the child was with difficulty extracted piece-meal; the conſequence was, that, notwithſtanding every poſſible care and attention, the violence employed in forcing the bones was fatal to the woman, who "was ſo much reduced "and ſpent, that ſhe died the 10th day af-"ter the operation."

It has been ſucceſsfully practiſed, however, ſince SIGAULT's operation, in different parts of France, by M. DESPRES, accoucheur in Brittany, M. GAMBON at Mons, in ſeveral inſtances *. M. NOGEL, chirurgien accoucheur †, and others; once in

* Recherches Hiſtoriques, &c., ſur la Section de la Symphyſe du Pubes. Par M. Alphonſe le Roy, &c. Paris, 8vo, 1780.

† Anatomie des Parties de la Generation, &c. Seconde edition. Augmentèe de la Coupe de la Symphyſe. Par

in Spain, and once and again in Holland. But it has repeatedly failed in the object of saving the child, and has been fatal to the mother; the bladder has been often wounded; incurable emiſſion of urine, and other dreadful accidents, have followed.

We may therefore conclude, that altho', under certain circumſtances, the diviſion of the oſſa pubis, by inciſion at the ſymphyſis, may be practicable and ſafe, the ſeparation by extenſion is uncertain and hazardous. It might, perhaps, in ſome *rare inſtances*, be the means of preſerving a child, who would otherwiſe be the victim of the operation of embryulcia; but as the advantage derived from it, by augmenting the tranſverſe diameter of the pelvis at the ſuperior aperture, is trifling, it can ſeldom be ſucceſsfully performed, with reſpect to the child, where the diſtortion is ſo conſiderable as to deſtroy the capacity of the baſin, and render delivery by the ſciſſars and crotchet neceſſary; a method which will always obtain the preference in every well-regulated ſtate, and with every

Par M. Gautier Dagoty, Pere, anatomiſte penſioné du Roi. A Paris 1778.

every humane practitioner, if the Sigaultian operation expofes the life of the more valuable parent to danger.

The operation confifts in making an incifion with a fcalpel through the common integuments and foft parts, in the direction of the commiffure of the offa pubis. The articulation at the cartilaginous fymphyfis muft afterwards be divided by the fame inftrument. The knees of the patient are to be kept gently feparate by an affiftant. A catheter is directed to be introduced, to prevent the accident of wounding the bladder in the operation; and we are advifed, for the fame reafon, to make the incifion, both of the foft parts and cartilages, a little towards the left fide. The diftraction of the bones is afterwards to be attempted, as far as is neceffary or practicable, by a cautious and gradual extenfion of the thighs.

The operation being finifhed, the contractile efforts of the uterus are to be waited for toexpel the child. The patient is afterwards to be confined to bed for feveral weeks, a bandage to be applied round the

loins, and the management directed on general principles. But if the natural pains should then fail, the sciſſars and crotchet muſt be uſed; the child muſt be turned; or the Cæſarian ſection had recourſe to.

The firſt propoſition, by deſtroying the child, diſappoints the original intention of the operation. For, if the mother could be delivered by the crotchet with ſafety, at the expence of deſtroying the child, that method will always be preferable to a precarious attempt to ſave the child, at the hazard of the mother's life. If the pain and danger ſhe ſuffers in the new operation, is not to be compenſated by a moral probability of ſaving the child, the operation is then *entirely uſeleſs*. And again, if it ſhould fail to enlarge the dimenſions of the pelvis, and embryulcia be afterwards neceſſary, the mother, in that event, is wantonly expoſed to the increaſed danger ariſing from both operations combined, with the additional hazard from the violence of mechanical force employed to extract the child, after the parts which ſuffer in the firſt operation have

been

been wounded, and the bones torn from each other.

The great ſtreſs applied to the nervous aponeurotic parts, at the ſacro-iliac ſymphyſis poſteriorly, may of itſelf alſo be fatal to the patient, or prove the cauſe of incurable lameneſs, independent of the other accidents incident to the operation.

With all deference to an authority which is univerſally reſpected, and which in few inſtances has been called in queſtion, we muſt beg leave to differ in opinion from Dr Hunter, whoſe ſentiments on this ſubject, though in general unfavourable to the operation, incline him to ſuggeſt, "that "the crotchet may be employed with ſafe-"ty to the mother when it fails."

The ſecond method, of attempting delivery by *turning*, with a view to ſave the child if the natural pains ſhould be inſufficient to protrude the head, after the bones of the pubes have been divided by Sigault's operation, although we are informed it has been ſucceſsfuly practiſed in one or more caſes on the Continent, is a moſt

moſt dangerous expedient to the mother. The proſpect it affords for the ſafety of the child, in a narrow pelvis, is too remote to encourage an experienced practitioner, who knows the difficulties that often attend turning in more favourable circumſtances, to engage in this troubleſome taſk. Such a propoſition in this country would be rejected with contempt by the generality of practitioners.

The *Cæſarian ſection* is the third method propoſed for accompliſhing delivery with ſafety to the child, the ſection of the pubes having failed, if the child cannot be eaſily extracted by the crotchet. It hath actually been practiſed in a ſingle inſtance, under the circumſtances juſt now mentioned. It is needleſs to add, that the unhappy patient ſoon after died. A recovery, under ſuch complicated ſufferings, would have been almoſt miraculous; and few practitioners will be hardy enough, if their miſguided judgement were permitted to rule, to venture a

ſecond

second time on an experiment so strictly desperate.

Dr Leak has considered the advantages and disadvantages of the Sigaultian operation; and seems to favour it in preference to the Cæsarian section; because the former "does not carry with it those ideas "of cruelty which attend the latter, where "the patient is, as it were, embowelled "alive. No formidable apparatus is neces-"sary, the section being made with expe-"dition, and without pain and danger: no "blood-vessel, nerve, or other parts essen-"tial to life, are wounded; those divided "being only *cutis*, *cellular membrane*, and "insensible cartilage, from which neither "*hemorrhagy* nor *symptomatic fever* are to "be apprehended*." He is therefore inclined to think, that with those "who are "disposed to give this new operation a fair "and judicious trial, as *it has already suc-"ceeded, it will again succeed.*" But though, in the body of a dead female subject in the Westminster

* Dr Leak's Practical Observations on the Child-bed Fever, &c. 5th *edition*, p. 255.

Weftminfter lying-in Hofpital, the bones of the pubes after incifion receded $2\frac{1}{8}$ inches without much violence, it does not appear that any confiderable acquifition of fpace in the dimenfions of the pelvis was procured by it. I have had occafion to make the fame experiment in repeated inftances on the dead fubject with no better fuccefs.

Upon the whole, therefore, from all the information we have yet received of the event of this new operation, we have little reafon to adopt it in preference to the method of delivery by the crotchet, wherever that inftrument can be ufed with fafety to the mother; and, as the fpace to be gained by it is as uncertain as the exact dimenfions of the child's head before delivery, it would be rafh and unwarrantable to adopt an expedient, precarious with refpect to the child, and highly dangerous to the mother, in fubftitution of embryulcia; which, if not too long delayed, may, in the prefent improved ftate of the art, be employed in moft cafes of diftortion with *perfect fafety* to the mother, who is always juftly entitled to the

the first place in our intentions, and whose valuable life is the most interesting and important object of our regard *.

CHAP.

* When this was written in 1783 the above contained our ideas on Sigault's operation. We can now add, that from the history of between 30 and 40 cases, where the division of the symphysis pubis was performed on the continent, and one case in Great Britain, we consider ourselves authorised to condemn that operation in every view, and to advise that it be had recourse to *in no case whatever.*

The world is much indebted to Dr Osborn for his accurate investigation of this subject; to which we with pleasure refer, and to which we think it unnecessary to add any remarks, as his sentiments on that occasion coincide perfectly with our own.—It is more than probable, that the almost universal rejection of this operation, by British practitioners, has been occasioned by the arguments contained in Dr Osborn's Essay.

BERRY... CAS... NATI MAHAL

CHAP. III.

PRETERNATURAL LABOURS.

LABOURS are ſtyled preternatural when any other part of the child than the head (or face) preſents.

The cauſes of preternatural labours are obſcure. The altered poſition has been attributed to the motions of the infant in the early months of geſtation, and to accidental violent corporeal agitation of the mother at that period. It may alſo be influenced by the particular form of the child, by the quantity of liquor amnii, by the length of the cord, by the ſtretching of the uterus, by the ſhape of the pelvis, and by a variety of other circumſtances.

We can ſometimes diſcover that the child preſents in an unfavourable poſition, even when the labour is but little advanced. We ſuſpect it,

1ſt,

1ſt, If the pains be more weak and trifling than uſual.

2dly, If the membranes be protruded in a long form, like a gut, or the finger of a glove.

3dly, If no part of the child can be felt when the orifice of the womb is conſiderably opened ; or,

4thly, If the preſenting part, through the membranes, be ſmaller, feel lighter, and give leſs reſiſtance, when touched, than the bulky heavy head.

It can with more certainty be aſcertained after the membranes are ruptured, by feeling diſtinctly the preſenting part. If the child's ſtools be paſſed with the waters, it is a ſign, either that the breech preſents, or that the child has been for ſome time dead; though there are ſome exceptions to this rule.

Preternatural labours are difficult of delivery, or hazardous, from,

1ſt, The health and conſtitution of the woman,

woman, and figure and dimenſions of the pelvis.

2*dly*, The bulk of the child's body, and manner of preſenting.

3*dly*, The time which has paſſed ſince the waters were evacuated; for if that have been long, the womb is more ſtrongly contracted, and the preſenting part puſhed on, and more firmly locked in the pelvis.

4*thly*, From a plurality of children; from the chord falling down before the preſenting part; being entangled with its limbs; or from profuſe flooding.

The variety of preternatural poſition may be reduced to the following claſſes.

I. When one or both of the lower extremities preſent; as one or both feet, knees, or the breech.

II. When the child lies croſs the pelvis in a rounded or oval form, with the arm, ſhoulder, ſide, back, or belly, preſenting.

III.

III. One or both arms protruded before the head.

Each clafs of this general divifion includes a variety of particular cafes. By giving a few examples of each clafs, a general idea of the manner of treating the whole will be formed.—It is, however, neceffary to obferve, that though delivery, in fome preternatural cafes, may be eafy, it is always precarious, and often difficult.

SECTION I.

PRESENTATIONS OF ONE OR BOTH FEET, OF THE KNEES, OR OF THE BREECH.

§ I. FOOTLING CASES.

THE moft fimple and eafy cafe of preternatural labour is fuppofed to be, *when the child prefents by the feet*: but there is fometimes danger left the head fhould be retained after the delivery of the body, which is lefs when the child prefents double; though,

even in that poſition, a firſt child frequently loſes its life.

We are often able to diſcern the preſenting part long before the membranes break, and it is of great conſequence to diſcover early how the child lies; but, in making the neceſſary examination, care muſt be taken not to preſs the finger againſt the membranes in time of a pain. A hand is often miſtaken for a foot; but the latter may be readily diſtinguiſhed from the former by a practitioner who examines leiſurely and attentively what he feels.

When one or both feet preſent in the paſſage, little more ought to be done than if the labour were ſtrictly natural, till the orifice of the womb be ſufficiently dilated, and the preſenting part advanced at or without the os externum. The woman muſt then be placed on her ſide, with the breech towards the edge of the bed, and her head obliquely to the oppoſite ſide.

When the parts are thus ſufficiently open, or the feet, by the force of repeated pains,

are

are at, or protruded without, the orifice of the vagina, the operator may then take hold, first of one leg, and, grasping it firmly above the ankle, gently endeavour to pull it down in the time of a pain, not in a straight line, but from side to side, or from pubes to sacrum: when the pain remits, a warm cloth is to be applied to the os externum, and the return of the pain should be waited for. The other leg is then to be taken hold of and pulled down in the same gradual gentle manner with the former: by pulling alternately, first by one foot, then by the other, there is less hazard of injuring the uterus, than if an attempt were made to bring down both feet at once; and the passages, being thus gradually stretched, will be better prepared for the delivery of the bulky shoulders and head.

When the feet are sufficiently advanced for it, a warm cloth should be wrapped round them; which will enable the operator to take a firmer hold, and defend the child from the hazard of injury by the extraction. But the cloth should be so ap-

plied, as to leave the toes expoſed; for they are the proper direction for turning the body. If they already point towards one or other ſacro iliac ſynchondroſis, the child is to be brought along in the ſame direction, till it ſtops from the reſiſtance of the ſhoulders. But if, inſtead of this direction, the toes ſhould point to the back or belly, the child's body muſt be gradually turned, till the belly be applied to that ſacro-iliac ſynchondroſis, to which it approaches neareſt.

The proper time to begin to turn is a little before the breech advances to the os externum. The turn ſhould not be made all at once, but gradually; the child's body muſt be firmly graſped with both hands, puſhing a little upwards, then turning to one ſide in time of the pain, carefully obſerving and favouring that line of direction which the child naturally inclines to take. The attempt muſt be repeated during every pain, till the child's body be turned round, and the face applied as already directed.

When the breech is entirely protruded without

without the os externum, the child muſt be taken hold of by graſping firmly with the thumbs above the haunches, and the fingers ſpread over the groins; the extraction muſt be gradually performed, moving from ſide to ſide, preſſing a little downwards towards the perinæum, and waiting for natural pains, or reſting from time to time. As the belly advances, the operator muſt ſlide up his hand, or two fingers, and very gently draw down a little the umbilical cord, leſt, being tenſe and overſtretched, the circulation might be interrupted, and the life of the child deſtroyed, which often happens where this precaution is neglected.

After the breech is protruded, and the navel-ſtring begins to be compreſſed, from the os tincæ graſping it like a ring, the delivery muſt be conducted with all the expedition that the mother's ſafety will admit of. When the child is advanced as far as the breaſt, its farther progreſs is prevented by the arms going up by the ſides of the head. This obſtacle muſt be removed

in this manner: The child's body ought to be ſupported by the one hand of the operator, which muſt be paſſed under its ſide, in ſuch a manner that it may reſt on the palm and arm of that hand; the infant muſt then be drawn a little to one ſide, that two or more fingers of the other hand may be paſſed at the oppoſite ſide into the pelvis, over the back of the ſhoulder, as far as the elbow, to bring down the arm obliquely along the breaſt, gently bending it at the fore-arm, ſo as to favour the natural motions of the joint. Having then ſhifted hands, the other arm muſt be diſengaged, and brought down in the ſame manner.

Both arms of the child being relieved, the woman may be allowed to reſt a little till another pain or two follow; when, by bearing down in the time of the pain, the head will generally be forced down and delivered. But if the woman be much exhauſted, and the head does not quickly follow, the child will be loſt from the preſſure of the navel-ſtring.

The pulſation of the arteries in the cord

ſhould

should regulate the time for extracting the head: while the pulsation is strong there is no hazard from delay; if the pulsation be weak or languid, more especially if the cord begins to be cold and flaccid, the extraction must be quickly performed, otherwise the child will be destroyed.

The extraction of the head in preternatural labours is often the most difficult and dangerous part of the delivery. The cause of resistance, when it does not advance, is chiefly owing to its confinement between the sacrum and pubes, when the bulky part of the head is detained at the brim, or at the lower part by the chin catching on the sacro-sciatic ligaments. The method of delivery is to introduce two fingers of the left hand (which hand and arm at the same time must support the body of the child) into the mouth, and pull down the jaw towards the breast; then applying the other hand with the fingers spread, so as to press down the shoulders, the operator must rise from his seat, and after having turned the face into the hollow of the sacrum, pull in

a direction from pubes to ſacrum with conſiderable force, alternately raiſing and depreſſing the head, till it begins to yield, ſo that the chin being conſtantly preſſed to the breaſt, the face will deſcend from the hollow of the ſacrum: the delivery muſt then be finiſhed, by bringing the hind-head from under the pubes with a half-round turn.

During theſe efforts, an aſſiſtant muſt be directed to preſs on the perinæum; and, whenever the circumſtances of the caſe will admit of it, the exertions of the operator ſhould coincide with the natural throes of labour, by which the extraction will be greatly facilitated.

If the mouth cannot be reached, the preſſure ſhould be made any where on the lower jaw. But great caution is required in making theſe attempts, as the jaw of a child is very delicate; and may from its ſtructure be eaſily injured. If any obſtacle ariſes from folds of the cord round the legs, thighs, body, or neck of the child, theſe muſt be diſengaged in the eaſieſt manner poſſible.

possible. The contraction of the orificium uteri round the child's neck rarely proves the cause of resistance, except when the feet are pulled down too early, or in premature labours, when it may be gently stretched with the fingers, and further endeavours should be delayed for some time.

If the head does not yield after repeated efforts, in the manner directed, there is a necessity for resting some time; as the head does not so soon collapse, and mould itself to the passage, in preternatural as in natural presentations. Whatever obstacle prevents it from advancing, it will still be prudent to rest for a little; and, after a proper interval, renew our exertions: by thus alternately resting, and attempting to extract, the head will yield, and the child may be saved, after a considerable exertion of force has been used.

If the cause of resistance appears to be the extraordinary bulk of the head from hydrocephalus, the teguments may be burst-ed by the force of pulling, by thrusting a

finger

finger through them, or by perforating the cranium with the perforator.

If, by the violent exertions employed, there is hazard of diſlocating the cervical vertebræ, and of ſeparating the body from the head, the operator muſt cautiouſly deſiſt from pulling, and wait for the contractions of the uterus, employing his exertions during the time of the pains only.

If the head is of a monſtrous ſize, or the pelvis very faulty, the former muſt be opened with the perforator at the baſis of the ſkull, and the extraction afterwards performed with the crochet.

The fingers of the operator introduced into the mouth, or preſſing on the upper or lower jaw, will be ſufficient to accompliſh the extraction of the head, where there is no great diſproportion between it and the pelvis; ſo that the forceps will ſeldom be neceſſary. In more difficult caſes, the crotchet muſt be uſed.

When one foot only is protruded into the Vagina, the other is ſometimes detained by catching on the pubes, and, if eaſily come

at,

at, ſhould be brought down, always obſerving to humour the natural motion of the joint; but if the leg ſhould be folded up along the child's body, or of difficult acceſs, the attempt is not only troubleſome, but dangerous, as there is hazard of tearing the uterus. It is leſs neceſſary, as the breech will be either naturally forced down by the aſſiſtance of pains, or by gently pulling at one leg only.

When one or both knees preſent, the legs often cannot be brought down, till the breech be gently raiſed and puſhed a little back in the pelvis.

If the feet ſhould offer along with the breech, it muſt be cautiouſly thruſt back, while the former are ſecured and brought down, till the poſition be reduced to a footling caſe, and the delivery otherwiſe managed as already directed.

§ 2.

§. 2. *Preſentations of the Breech.*

Although the breech preſent, the ſituation of the infant, relating to the mother, is different in different caſes.

The varieties are,

The fore-parts of the child placed to,

1*ſt*, The pubes of the mother;

2*dly*, To the ſacrum;

3*dly*, To either ſide.

Sometimes the preſentation of the breech may be diſcovered before the membranes break; but afterwards, with more certainty, by the meconium of the child accompanying the waters; and by feeling the ſulcus between buttocks, the thighs, or the genitals of the child.

In whatever manner the breech preſents, the delivery ſhould be ſubmitted to nature, till the child be advanced ſo far that the breech and feet are protruded without the parts.

If the fore-parts of the child be placed anteriorly or poſteriorly to the mother, when the infant is ſo far advanced that it can be laid hold of and wrapped in a cloth, the mechanical turns muſt be made, and the delivery

delivery finiſhed, as directed in footling-caſes.

There is much leſs hazard, in general, in allowing the child to advance double, than in precipitating the extraction, by puſhing up to bring down the feet, before the parts have been ſufficiently dilated; a practice difficult and troubleſome to the operator; painful, and ſometimes dangerous, to the mother; and by which the child is expoſed to the riſk of ſtrangulation, from the retention of the head after the delivery of the body. If the child be ſmall, though doubled, it will eaſily paſs in that direction; if large, though the labour ſhould be painful, the natural throes are leſs violent and dangerous than the pain occaſioned, firſt, by introducing the hand with a view to turn, and, 2dly, by puſhing up the child in order to lay hold of the feet and bring them down. If the child advances naturally, it will be leſs expoſed to ſuffer; if it ſhould not advance, there is this advantage, that the parts of the mother will be properly prepared, when the ſtrong pains are abated,

ted, for allowing the hand to be paſſed into the pelvis, to raiſe up the breech, ſearch for the feet, bring down one or both, and deliver.

The propriety of this mode of treatment is ſupported by the pains being often ſtronger in breech-caſes, than in natural labour: but it cannot be followed when the mother is weak, and the pains are trifling; when ſhe is affected with floodings or convulſions; when the child is of a very large ſize, or the pelvis narrow; when the umbilical cord falls down, and is compreſſed between the thighs of the child, or between the child and the pelvis, and cannot be reduced above the preſenting part.

The prolapſus of the navel-ſtring generally accompanies that poſition of the breech where the child preſents with its fore-parts to the belly of the mother. Sometimes the cord can be reduced, and the child's life preſerved: but if the breech be far advanced, and the pains ſtrong, it is not only difficult, but hazardous, to puſh up the child; whoſe life can ſeldom, in ſuch circumſtan-

ces,

ces, be preſerved. It is better, therefore, to let the child come as it preſents, if there are pains, than to hazard the more important life of the mother, by attempting to puſh up and turn. But, in all doubtful and perplexing caſes, when there is time for it, the advice of a more ſkilful practitioner ought to be taken.

When the breech is ſo far advanced, that a finger or two can be paſſed under the bended thigh, as far as the groin of the child, aſſiſtance may be given with advantage, by alternately pulling, firſt at one ſide, then at the other, in time of the pain, provided the circumſtances of the caſe require interference. But great care ought to be taken not to miſtake the ſhoulder for the breech, and not to injure the child by violent pulling, or unequal preſſure. Such errors have often been committed, and the conſequences have been fatal.

In breech-caſes, the greateſt caution is neceſſary, when the genital parts preſent, leſt the child ſhould be injured by too frequent touching.

SEC-

SECTION II.

PRESENTATION OF THE ARM, SHOULDER, SIDE, BACK, OR BELLY.

In the former caſes delivery may ſometimes, when the child is ſmall, be accompliſhed without manual aſſiſtance; but in thoſe at preſent under conſideration, no force of pain can make the infant advance in that awkward poſition; and, without proper aid, both mother and child would periſh.

If a ſkilful practitioner have the management of the labour from the beginning, the child may generally be turned, in the worſt poſition, without much difficulty: but when the waters have been for ſome time evacuated, and the uterus is ſtrongly contracted in a longitudinal form round the child's body, turning will be difficult and laborious to the operator; painful and dangerous to the mother. For it ought to be conſidered, that the great difficulty and hazard of turning are chiefly owing to the reſiſtance which

which the uterus gives; not so much to the position of the fœtus. When the water, in whole, or in part, is retained, there is easy access to reach the feet, and bring them down; but in proportion as the water is evacuated, the uterine cavity becomes less spacious, and turning is rendered both troublesome and dangerous.

It was the old prrctice, in preternatural labours, to endeavour to make the head present; but, on account of its bulk, it could seldom be done; and the force employed in making the attempt was often attended with fatal consequences. The method of delivering by the feet is one of the most important modern improvements in the practice of midwifery; an improvement to which many thousands owe their lives.

When the child lies in a transverse position, the management is very simple. We must gently pass the hand into the uterus, to search for the feet, bring them down with the utmost caution, and finish the delivery as directed in footling cases; for which purpose the following rules should be observed.

Rules for Turning the Child.

1. The woman muſt be placed in a convenient poſture, and kept ſteady by aſſiſtants, that the operator may be able to employ either hand, as the circumſtances of the caſe may require.

2. The beſt poſture for the operator, in general, as well as the patient, is the left ſide, with her breech placed over the edge of the bed, and her knees kept ſeparate with a folded pillow.

3. The orificium uteri ſhould be enlarged ſo much as to allow the hand to paſs freely; and the ſtrong pains ſhould have abated, before any attempt be made to deliver.

4. It is of great conſequence to endeavour to learn the poſition of the child, and to attend to the ſhape and dimenſions of the pelvis, before attempting to make the delivery.

5. In preternatural caſes, every poſſible means ought to be uſed to preſerve the membranes as long as poſſible. If they ſhould break

break before the hand is introduced, and the ftate of the parts will admit of it, the hand fhould be quickly after paffed; part of the water being thus retained, the operation of turning will be greatly faciliated. But if the waters be drained off, and the uterus rigidly contracted round the body of the child, a full dofe of laudanum fhould be given, previous to any attempt to procure delivery.

6. The hand and arm of the operator muft be lubricated with pomatum, before attempting to introduce it into the vagina; the fingers muft be gathered together in a conical form, and the refiftance of the os externum be overcome by very flow and gradual degrees.

7. In paffing the hand into the uterus, it ought to be done in the gentleft manner, but with a certain degree of refolution and courage. The paffages fhould be well lubricated with butter or pomatum; the line of the vagina and pelvis carefully attended to; the movements of the operator muft be flow and gradual; and thus, by giving time,

the utmoſt rigidity in the ſoft parts may be overcome.

8. The hand ought to be introduced only during the remiſſion of pain; when the pain comes, the operator ſhould ſtop, otherwiſe there is great hazard of puſhing the hand, or ſome part of the child, through the ſubſtance of the uterus.

9. The hand ſhould, if poſſible, be introduced by the fore-parts of the child, as the feet are generally folded along the belly; and both feet, if eaſily come at, ſhould be laid hold of.

10. In puſhing back any part of the body of the child to come at the feet, the palm of the hand, or broad expanded fingers, muſt be uſed. This part of the operation ſhould be performed always during the remiſſion of pain. And the ſame rule is to be obſerved in bringing down the legs; but in making the extraction of the body, when the legs are in the proper line of direction, the efforts of the artiſt ought always to cooperate with thoſe of nature.

11. As the breech advances through the pelvis,

pelvis, the child, if not already in the proper pofition, muft be gradually turned with the fore-parts to the facro-iliac fyncondrofis of the mother.

12. Practitioners in midwifery fhould be cautious of giving credit to any report of the child's death; for moft of the fymptoms are fallacious. Children are often born alive, when there is little reafon to expect it; therefore, in pufhing up, bringing down the legs, or extracting the body, the child fhould never be treated roughly, but handled with the greateft delicacy.

13. When the hand is within the pelvis, and there is a neceffity for paffing it pretty high in the uterus, to fearch for the child's feet, the proper direction is not precifely in the line of the navel, as Dr Smellie advifes, but inclining it a little to one fide, to avoid the prominent angle of the facrum, by which more room will be gained, and lefs pain given to the woman; for the womb preffes ftrongly there.

14. When the hand is interrupted in paffing,

ſing, by the ſpaſmodic contraction of the uterus, we muſt deſiſt from further inſinuation, till the conſtriction of the uterus is ſomewhat abated.

15. If the hand cannot paſs beyond the preſenting part of the child, to come at the feet, inſtead of thruſting back the preſenting part with violence, it ſhould be, as it were, firſt raiſed up in the pelvis, and then moved to the oppoſite ſide. By this means difficulties, otherwiſe inſurmountable, may be removed, and great danger often prevented.

16. When both feet cannot readily be obtained, the practitioner ſhould content himſelf with one foot; and after ſecuring it with a ligature, he may make a cautious attempt to bring down the other foot.

17. But if the ſecond foot cannot readily be found or brought down, the child may often be extracted with the utmoſt ſafety by one foot only, provided he proceed ſlowly in the operation.

18. When the foot or feet begin to protrude

trude without the os externum, let them be covered with a soft cloth, and the advantage of the natural pains improved, to assist the extraction.

19. In all preternatural labours, when the child is delivered as far as the breech, the stricture of the navel-string should be removed by gently drawing it down a little, as already directed.

20. As the breech advances towards the os externum, the proper means for guarding against laceration of the perinæum must be attended to.

21. The arms are to be relieved, and the head extracted, in the manner already directed in footling cases.

Children delivered by the feet are often still-born. Besides, the body has been sometimes separated from the neck, and the head left behind in the cavity of the uterus; an accident which can only happen by the rashness, negligence, or unskilfulness of the practitioner.

The causes chiefly are, 1*st*, The putrid state of the child's body, in consequence of

its death; 2*dly*, The neglect of the operator to make the proper turns when extracting the body; 3*dly*, The narrownefs of the pelvis, or bulk of the child's head.

To prevent this accident when the child's body is putrid, the operator fhould never attempt to extract the head till two fingers be introduced into the mouth; and, by pulling down the jaw, and preffing on the fhoulders, while an affiftant gently preffes on the woman's belly, and the woman herfelf bears down in the time of a pain, the extraction may generally, unlefs when the pelvis is narrow, be fafely effected.

If the head fhould be actually feparated and left behind in the womb, and cannot be extracted by introducing two fingers into the mouth, and waiting for the affiftance of pains, and the forceps fhould fail, the crotchet muft be ufed. The method is to keep the head fteady by the preffure of an affiftant on the woman's belly, till the head is opened with the perforator, and extracted with the crotchet according to the rules already given.

By

By attending carefully to the above rules, lacerations of the uterus, floodings, convulsions, inflammation, and their consequences, may be prevented, and the child's life often preserved, even when it presents in the most awkward position.

We proceed to consider a few particular cases.

Case 1. *The Arm Presenting.*—This position occurs frequently. It is of some consequence to form a general notion how the child lies, before the operator sits down to deliver. The right hand, by a little attention, may be readily distinguished from the left, if we lay hold of the child's hand in the same manner as in shaking hands.

It is often in the power of a skilful practitioner to prevent the hand from coming down, or to reduce it when it protrudes: But if the arm be forced into the passage so low that the shoulder is locked in the pelvis, it is needless to give the woman the pain of attempting the reduction, as the hand of the operator can be passed into the uterus

uterus by the ſide of the child's arm, which will, of courſe, return into the uterus, when the feet are brought down into the vagina. As the head, in this caſe, cannot eaſily be made to preſent; in order to make the delivery by turning the child, the hand and arm of the operator, well lubricated, muſt be conducted into the uterus by the ſide of the child's arm, along the breaſt and belly of the child, towards the ſide of the pelvis oppoſite to where the head lies. If any difficulty occurs in coming at the feet, the hand already introduced muſt be withdrawn, and the other paſſed in its ſtead. If ſtill the hand cannot eaſily be puſhed beyond the child's ſhoulder and head, the preſenting part muſt be gently raiſed up, or cautiouſly ſhifted to a ſide, that one or both feet may be taken hold of, which muſt be brought as low as poſſible, puſhing up the head and ſhoulders, and pulling down the feet, alternately, till they advance into the vagina, or ſo low, that a nooſe or fillet can be applied; and thus, by pulling with the one hand, by means of the nooſe, and puſhing with the other,

other, the feet can be brought down, and the delivery finiſhed in the moſt complicated and difficult caſes.

The method of forming the noose is by paſſing the two ends of a piece of tape, or garter, through the middle when doubled; or, if the garter be thick and clumſy, by making an eye on one end, and paſſing the other extremity through it. This muſt be mounted on the points of the fingers and thumb of the hand of the operator, who muſt take hold of the child's foot, ſlip it over the foot and ankle, and ſecure it by pulling at the other extremity.

Caſe 2. *The Shoulder.*—Great care ought to be taken, that it may not be miſtaken for the buttock. The ſhoulder will feel harder and more bony than the full, thick, fleſhy, buttock; a mark which may be taken along with the others formerly mentioned in Breech Caſes.

Though the child ſhould originally preſent with the ſhoulder, when the orificium uteri is dilated, the arm, if not prevented, may

may readily be forced, by the repeated efforts of the labour-throes, into the paſſage. In proportion as the preſenting part advances, and the ſhoulder becomes locked in the pelvis, delivery by turning will be more difficult and hazardous.

Except the child be of a very ſmall ſize, and the hand preſſed cloſe to the ſide of the head, it is impoſſible for the head and arm to paſs together; it is, therefore, cruel and barbarous to pull the arm, in order to deliver the child in that way. The arm, in feet preſentations, has, by the ignorance of the practitioner, been often torn from the body (of which I have lately ſeen an inſtance), and the mother has died in the attempt.

Caſe 3. *The Side.*—This is diſcovered by feeling the ribs.

Caſe 4. *The Back.*—This is diſcerned by feeling ſome part of the ſpine, or backbone.

Caſe

Cafe 5. *The Belly* is known by the foft yielding fubftance of the part, and by the falling down of fome portion of the umbilical cord.

Thefe three prefentations, viz. The *fide*, *back*, and *belly*, more rarely occur, as the uterus will, with difficulty, admit of fuch pofitions.

When any of thefe parts do prefent, they feldom advance much beyond the brim of the pelvis; and the child is, in general, as eafily turned as in other prefentations which more frequently occur.

The belly, from the difficulty with which the legs can be bended backwards, unlefs the child be flaccid, putrid, or immature, will very feldom directly prefent; if it does, it will be early and eafily difcovered by the prolapfus of the cord, and there will be no great difficulty to come at the feet, and deliver.

The rule in all thefe four cafes is, to infinuate the hand into the uterus, in the gentleft manner poffible, when the ftate of the parts will admit of it, before the uterus be contracted

tracted in a longitudinal form, to ſearch for the feet, bring them down, and deliver, agreeably to the directions already given for that purpoſe.

SECTION III.

ONE OR BOTH ARMS PRESENTING, AND THE HEAD FOLLOWING NEARLY IN THE SAME DIRECTION.

WHEN the child lies with the arm or ſhoulder preſenting, and the head more or leſs over the pubes, or reſting on one ſide at the brim of the pelvis, the feet towards the fundus uteri, the waters evacuated, and the uterus cloſely contracted in a longitudinal form round the child's body, it forms one of the moſt difficult caſes of preternatural labour *.

When the arm protrudes in this manner, it ought, if poſſible, to be reduced, and the head brought down into the pelvis; for it is often equally difficult and dangerous to deliver

* The hiſtory of an intereſting caſe of this kind is detailed, p. 104. in Dr James Hamilton's Select Caſes in Midwifery.

deliver by the feet, and sometimes utterly impracticable.

A skilful practitioner, who has the management of the delivery from the beginning, will sometimes be able to prevent the protrusion of the arm; and if this is to be atempted, it should be as soon as possible after the rupture of the membranes. If he fails, and the arm should be forced down, the earliest opportunity should be taken to reduce it. If successful, it will prevent much future trouble; it will be a happy circumstance for the mother, and may be the means of preserving both her life and that of the child. With this view, when the position of the woman is adjusted, the hand of the operator, well lubricated, should be insinuated through the vagina into the uterus, conducted by the child's arm, till it reaches as far as the axilla or shoulder. The shoulder must then be raised up, and shifted, as it were, obliquely, to the side of the pelvis, opposite to that to which it inclines. By this means the position of the child will be somewhat altered, and the arm drawn up within

within the vagina, ſo that it will be afterwards no difficult taſk to reduce it completely. But ſhould this method fail, an attempt may be made to puſh up the fore-arm at the elbow; and, in bending it, great care muſt be taken to avoid over-ſtraining, or diſlocating the joint. Theſe attempts muſt only be made in the intervals of pain: when the pain recurs, the operator ought immediately to deſiſt; for by puſhing in time of the pain, or in an improper direction, the uterus may be torn, and the moſt fatal conſequences ſoon enſue.

In whatever manner the reduction of the child's arm ſhall be accompliſhed, if any method proves ſucceſsful, it muſt be retained in the uterus by the hand of the operator, till the child's head, by the force of the next pain, fills up the pelvis, and prevents its return; otherwiſe the arm will be protruded as often as it is reduced.

But if the orificium uteri be not ſufficiently opened to admit of the reduction of the protruding arm with ſafety; if, as the arm advances, the head reclines to one ſide of

of the pelvis, the throes of labour are violent, and the intervals short; it would then be as dangerous to the patient as difficult to the operator, to attempt delivery by manual exertions: for the spasmodic contractions of the uterus counteract every artificial effort; and if much mechanical force be used, the uterus is in hazard of actual laceration. In these circumstances, regardless of the anxiety of the patient, or the importunities of the attendants, the operator should desist for some time from further efforts; a large dose of liquid laudanum should be given, as from 50 to 80 drops; and when the parts are sufficiently dilated, and the strong forcing pains abated, his attempts should then be renewed. His object should then be to insinuate his hand beyond the presenting part to come at the feet, bring them down, and deliver. If these attempts should fail, he may endeavour to alter the position of the child, by fixing a noose on the arm, and pulling by it. More easy access may be then obtained to the anterior parts of the child, by which the hand can be conducted to the

feet; a mode of practice I have successfully employed in repeated instances, where, *otherwise*, I should have been obliged to destroy the child. But, if every method should prove ineffectual, either to reduce the arm or bring down a foot, by turning round the child, *by a fillet fixed on the arm*, in the manner recommended, and the woman's life is in danger, the head of the child, if it can be reached, must be opened; after a proper interval, a crotchet introduced; and the extraction made by pulling at it and the protruded arm.

Should the head be without reach of the perforator, the crotchet must be fixed on the trunk or thorax, with a view to bring down the breech or feet; by securing a firm hold of the arm, and pulling by the crotchet, the delivery must, in that manner, be accomplished. This practice should only be had recourse to when the pelvis is faulty, or the patient's life in immediate danger.

In the longitudinal contraction of the uterus, when an arm presents, and the shoulder

shoulder is advanced in the passage, so that the feet cannot easily be come at, DR DENMAN advises "to pull the body lower "down by the arm, and the difficulty "will be lessened, or removed. There is "happily (he adds), no necessity of turn- "ing the child in these circumstances; for "it will be born by the effect of the powers "of Nature only. In such cases, the child "does not come double, but the *breech* is "the first part delivered, and the *head* the "last, the body turning upon its own ax- "is."

He adopts this opinion from four cases which occurred in his own practice, and several similar histories related by others; in all which, however, the child was dead.

He therefore infers, "That, in cases in "which children present with the arm, "women would not necessarily die unde- "livered, though they were not assisted by "art."

He concludes his observations with this important remark:

 "The

"The benefit we are to derive in prac-"tice from the knowledge of this fact is, "that the custom of turning and deliver-"ing by the feet, in presentations of the "arm, will remain necessary and proper "in all cases in which the operation can be "performed with safety to the mother, and "give a chance of preserving the life of "the child; but, when the child is dead, "and when we have no other view but "merely to extract the child, to remove "the danger thence arising to the mother, "it is of great importance to know, that "*the child may be turned spontaneously by* "*the action of the uterus* *."

On this opinion I offered the following observations in the editions of this work preceding the year 1796.

"DR DENMAN's remark is new to me. In a case where the powers of nature have been

* See DR DENMAN's Aphorisms respecting the Distinction and Management of Preternatural Presentation.—The substance of that publication is now comprehended in Dr Denham's Introduction, &c.

been usually considered as desperate, it is new, perhaps, only because the practitioner has thought it useless to wait for them. But though curious, as it shows what Nature in her struggles can perform; and though surprising, as it apparently contradicts the laws of motion; it seems to me unnecessary, as in the numerous arm-presentations which I have attended, the child has for the most part been preserved, and the woman has seldom suffered any material injury from the delivery. I have therefore continued to practise the method which I have just recommended; and, in the most intricate presentations, have generally succeeded in making the delivery, by fixing a fillet on the arm, and altering the position in the manner mentioned, when every other method had failed. I have never yet known a case to occur where the pelvis was tolerably proportioned, in which I could not either obtain access to the feet to deliver by turning, or reduce the arm and bring down the head; and have, in several cases,

 success-

ſucceſsfully turned where the pelvis was conſiderably diſtorted *.

" It may be neceſſary, however, to ſtate the principles of this operation, that we may be aware how far to truſt the unaſſiſted efforts of the conſtitution.

" The longitudinal contraction of the uterus is one of thoſe blind and indiſcriminate attempts which Nature ſometimes makes to free herſelf from a burden. When her powers are exhauſted, theſe efforts are diminiſhed, and the uterus is relaxed. In theſe circumſtances, then, if we can fix the arm,

* " In preſence of the Gentlemen who attended my Lectures laſt ſummer (1782,) I delivered a woman in the public lying-in ward, Royal Infirmary; the circumſtances of whoſe caſe were as follow:

The arm of the child preſented, and had been in the paſſage, with the waters drained, from the preceding evening. The pelvis was conſiderably diſtorted, and the crotchet had been uſed in her former deliveries. The woman is of an under-ſize, of a feeble conſtitution, and the paſſages were ſo tight as to cramp the hand when introduced into the pelvis. By gradual ſtretching, and gentle inſinuation, I with ſome difficulty reached a foot, and accompliſhed the delivery without the aſſiſtance of any inſtrument."

arm, the body will of itself turn as on an axis; and the *heavier* part, or the breech, will come downward and be delivered. The arm is *fixed* by drawing down the shoulder; but it will be obvious, that the natural falling down of the breech will immediately draw it back again; and it is in this way that the child does not *ultimately* come down double. This operation can be easily imitated on machinery, if the aperture is conical to fix that part which represents the arm; and it is in this way clear, that the contradiction to the laws of motion is apparent only.

"In the manner we have just stated, this mode of delivery may seem to be preferable; but various circumstances diminish its advantages. Dr Denman has very properly limited it to the delivery of a dead child, and we may add a well proportioned pelvis: but even there we exhaust the powers of Nature, without an adequate advantage; especially if we reflect, that, in this exhausted state, an inconsiderable increase of the usual discharges may prove fatal."

Since the above was written, ſeveral caſes have fallen under my obſervation, which confirm theſe hints.

'The ſpontaneous evolution,' as my ſon has remarked * 'can only take place where the child lies in a particular ſituation, viz. where the action of the uterus cannot be exerted on the preſenting part, or where that part is ſo ſhaped that it cannot be wedged within the pelvis.'

When the child is in the poſition alluded to, if there be ſtrong uterine contractions, the breech is forced down; and, therefore, the concurrence of violent labour-throes is required.

From this view of the ſubject, it muſt be obvious, that a practitioner may always be able to judge whether the evolution be likely to take place, and hence may know when to aſſiſt the efforts of nature, and when to interpoſe the interference of art.

When both arms preſent, the delivery muſt be conducted much in the ſame manner as when

* Select Caſes in Midwifery, p. 111.

when one only preſents. The former caſe is nearly as eaſily managed as the latter, as the head ſeldom advances far in that poſition, being locked in the pelvis, as it were, by two wedges ; ſo that the arms can either be reduced, with a view to bring down the head, or there will be eaſy acceſs to come at the feet, to bring them down and deliver.

Should it ſo happen, however, that the head, with the hand at each ſide, is jammed within the cavity of the pelvis, before the practitioner be called, all violent attempts to reduce the hands ought to be avoided, and the vectis forceps or crotchet, according to circumſtances, ſhould be employed.

CHAP.

CHAP. IV.

COMPLEX LABOURS.

UNDER this title are comprehended all cafes of labour that cannot be referred to any of the fpecies which have been already confidered in this work.

It is not propofed to notice every labour that may, with propriety, be ftyled complex. The treatment of the principal cafes being detailed, the management of the others may be eafily directed by the judgement of the practitioner.

For thefe reafons, we fhall confider cafes,

1ft, Of plurality of children.
2dly, Of monftruous productions.
3dly, Of uterine hæmorrhagy.
4thly, Of convulfions.
5thly, Of ruptured uterus; and,
Laftly, Of prolapfus of the umbilical cord.

SECTION I.

PLURALITY OF CHILDREN.

ALTHOUGH women commonly produce one child only at a birth, yet the uterus is capable of containing ſeveral.

Caſes of twins often occur, of triplets ſeldom, of four children very rarely *, and there are few inſtances of five fœtuſes at one birth, notwithſtanding the fabulous hiſtories which have been related by credulous authors.

DR GARSHORE, in a late paper in the Tranſactions of the Royal Society, has, however, collected one or two well authenticated

* Thirteen years ago (1782) I was called to a woman in this city, who brought forth four children at a birth, between the 6th and 7th months. One of my Pupils was ſent when the meſſage came for me, and before my arrival ſhe was delivered of two. Three of the children were born alive and lived ſome hours. This is the only inſtance of the kind ever known to have occurred in Edinburgh.

ticated cafes of five children at a birth, and has made fome valuable remarks on plurality of children at a birth, to which we refer.

It is very difficult to judge of the exiftence of twins or triplets, from appearances previous to delivery; for all the figns enumerated are fallacious.

When there is reafon to fufpect that there is another child, after the delivery of the firft, it ought to be afcertained by paffing the hand over the abdomen; or, if that is infufficient, by the introduction of the hand into the uterus.

The fymptoms to which practitioners have chiefly trufted, after the birth of one child, are,

1ft, The diminutive fize of the child, and the waters being difproportioned to the diftention of the gravid uterus.

2dly, The umbilical cord, after it is divided, continuing to bleed beyond the ufual time.

3dly, The recurrence of regular labour.

4thly,

4*thly*, The retention of the placenta.

5*thly*, The abdominal tumor not being ſenſibly diminiſhed between the ſtomach and umbilicus.

All theſe ſymtoms are ſeldom united; and ſeveral of them are, by themſelves, fallacious: for the placentæ of twins are often diſtant from each other in the uterus, and ſo looſely connected to it, that one may entirely ſeparate before the ſecond child be born; ſo that labour-pains will ſometimes ceaſe for two or three days; and there is the ſame interval between the births of the children.

The moſt certain method, therefore, is to attend to the uſual diminution of the belly, and in doubtful caſes, to introduce the hand into the uterus; but this will very ſeldom be found neceſſary.

The poſition of twins or triplets is commonly that which is moſt commodiouſly adapted to the uterus, and which will occupy the leaſt room; one child often preſents naturally; the other, or others, by the feet or breech; ſometimes both, or all,

present naturally: at other times the position is cross; so that the delivery must be regulated by the presentation.

With regard to the management, opposite sentiments have been entertained.

In some instances, natural pains, after the delivery of the first child, soon come on. The membranes will then be quickly forced down; and the presenting part of the child may be readily felt through them; but if the presentation of the child should be doubtful to the touch, the practitioner ought immediately to place the woman in a proper position, and gently insinuate his hand, by the side of the membranes, into the uterus, and examine how the child lies. If the head or breech present, it is only necessary to break the membranes, withdraw the hand, and leave the child to be expelled by the natural pains. If the feet are felt through the membranes, these ought to be ruptured, the feet taken hold of, and brought into the passage. The delivery must be otherwise managed as directed in footling cases,

cases, carefully observing not to neglect the proper turns in extracting the body.

If any other part than the head, breech, or feet, should present, the latter must be searched for through the membranes, and brought down into the passage.

When the uterus is very much distended, it, in some degree, loses its power of contraction. From this cause, the pains are often less strong and forcing, and the labour is more tedious, in twins and triplets, than when there is but one child; hence a considerable length of time, as several days, in some instances, intervenes between the birth of the different children. In this interval, the woman is apt to suffer from impatience and anxiety. Floodings frequently come on; and the labour is more painful and hazardous, in proportion as the time of delivery is protracted. It may, therefore, be recommended to practitioners as a general rule, if labour-pains do not naturally recur soon after the birth of the first child, to pass the hand gently into the uterus, break the mem-

branes,

branes, and manage the delivery according to the preſentation.

As this ſubject has given riſe to a variety of opinions among authors, we ſhall add, for the inſtruction of young practitioners, a few rules, which include the whole directions neceſſary for the management.

Rules for Delivery, in Caſes of Twins, Triplets, &c.

1. If a ſecond child be ſuſpected, a ligature ought immediately to be made on the end of the umbilical cord next the mother (ſhould that not have been already done) leſt the two placentæ being connected, the cord ſhould continue to bleed. A caſe of this kind occurred to MR PERFECT.

2. When it is aſcertained that there is another child, the practitioner ſhould ſtay with his patient, as if waiting for the ſeparation of the placenta, and carefully watch, leſt a flooding ſhould occur.

3. A

3. A gentle compreſſion ought to be made on the abdomen, which muſt be gradually tightened, as the uterine tumour ſubſides.

4. If pains ſoon come on, and the child preſents in a poſition in which it can advance without manual aſſiſtance, it ſhould be allowed to be expelled by the natural pains, provided the patient be not much exhauſted.

5. If labour-pains do not occur within the ſpace of an hour after the birth of the firſt child, or if the ſecond child be found to preſent by any other part than the head, or though it do preſent naturally, if the woman have undergone much fatigue during the previous proceſs of labour; it then becomes neceſſary to have recourſe to the operation of turning the ſecond child. This ought to be proceeded to without further delay; for otherwiſe ſeveral untoward accidents may happen.

6. After the birth of the ſecond child, the ſtate of the uterus ſhould be again carefully

 examined,

examined, left there be another child remaining. Should this prove to be the case, the patient must be allowed to rest for half an hour if there be no urgent symptom; and then the operator is to extract the third child by rupturing the membranes, bringing down the feet, &c.

7. When another child is discovered, no attempt ought to be made to remove the placenta, before the delivery of the remaining child or children; such attempts would expose the woman to the hazard of flooding, which might end fatally before the uterus could be emptied of its contents.

8 The placentæ of twins and triplets are often connected, and adhere at the edges, though each child has its distinct membranes and water.

When they adhere at the sides, they separate, and are expelled together, after the birth of the last of the children. But when they are attached in different portions to the uterus, the placenta frequently follows the birth of that child to which it belonged, before the second labour ensues.

9. The

9. The placentæ of twins, or triplets, generally ſeparate eaſily, provided time be given for the contraction of the uterus. Each cord ſhould be cautiouſly pulled, ſometimes alternately, ſometimes pulling by both, or by all at once, deſiring the woman to aſſiſt gently by her own efforts.

When the bulky maſs advances as far as the os tincæ, the reſiſtance occaſioned by the contracting orifice muſt be removed, by the introduction of a finger or two within the paſſage, to bring down the edge: the ſubſtance of the cake is then to be graſped firmly, and the whole entirely extracted.

When they adhere in diſtinct portions, they muſt be ſeparated, one after another, and removed.

10. If flooding ſhould occur, or any of thoſe obſtacles to expulſion formerly mentioned, the hand muſt be conducted into the uterus, and the ſeparation and extraction of the placentæ accompliſhed, agreeably to the directions already given.

SECTION II.

MONSTROUS PRODUCTIONS.

THESE are of various ſizes and forms; and, unleſs very ſmall, the preſentation favourable, and the woman well made, will prove the cauſe of a difficult and troubleſome delivery. Sometimes a child is monſtrous, from a preternatural conformation of parts; ſuch as a monſtrous head, thorax, abdomen, &c.; at other times, there is a double ſet of parts, as two heads *, two bodies with one head, four arms, legs, &c. But ſuch appearances very ſeldom occur in practice; and when they do, the delivery muſt

* I was ſome time ago favoured with the hiſtory of the delivery of a child with two heads, and a plate exhibiting its appearance after birth, by Dr Wickſted of Nantwich; and have lately received, from Mr Johnſon ſurgeon at Dunbar, a caſt, in ſtucco, of a fœtus born with a ſoft tumour attached to the ſuperior part of the cranium, reſembling in ſhape and ſize a ſecond head.

muſt be regulated entirely according to the circumſtances of the caſe. A large head, thorax, or belly, muſt be opened. If two bodies united, or one body with ſupernumerary limbs, form too bulky a maſs to paſs entire, they muſt be ſeparated. If the poſture be unfavourable, it muſt be reduced when practicable; otherwiſe the extraction muſt be made with the crotchet, in the beſt manner the particular circumſtances of the caſe will admit of.

SECTION III.

UTERINE HÆMORRHAGY

FLOODINGS, as already explained, proceed from a ſeparation of ſome portion of the placenta, or ſpongy chorion, from the internal ſurface of the uterus. But the moſt dangerous hæmorrhagies ariſe from a ſeparation of the cake, when attached to the cervix, or over the orificium uteri *.

* See the article *Flooding*, in diſeaſes of pregnancy.

Floodings, before the ſeventh month of geſtation, may be often checked by the management formerly directed; after which period, however, there is always conſiderable danger. And as it is ſometimes neceſſary to deliver even when no part of the placenta can be reached with the finger, the conſtant attendance of the practitioner is requiſite, and the utmoſt judgment to ſeize the proper time of proceeding.

There is hazard in attempting delivery too early, while the os uteri is cloſe and rigid. When the woman, from loſs of blood, is ſomewhat ſunk, the uterine orifice is more relaxed and dilatable. The time can only be determined by conſtantly ſtaying by the patient, and examining the ſtate of the os uteri occaſionally. In ſo critical a ſituation, the neglect of half an hour, or leſs, may be fatal to the mother and child.

The beſt practice in this caſe is, firſt, to wait on; to give opiates at proper intervals; and to keep the woman quiet and cool. If poſſible, delivery ſhould never be attempted till the os uteri be dilated, and the

membranes

membranes begin to protrude. The hand muſt then be paſſed into the uterus, the feet of the child taken hold of and brought down. The uterus now, being emptied of its contents, contracts, and ſoon ſtops the flow of blood, or prevents an exceſſive diſcharge: but it muſt always be a rule with the practitioner, to extract the body of the child after the feet are brought down, by very ſlow and gradual efforts; leſt, from too ſudden evacuation of the uterine contents, fatal faintings or convulſions might enſue. On this occaſion, we think it incumbent on us to obſerve, notwithſtanding a contrary opinion being maintained by ſome reſpectable practitioners, that whenever the patient is *much exhauſted* from loſs of blood, whatever be the cauſe, her life depends on *expeditious delivery alone*.

Flooding from the *attachment of the placenta at the orificium uteri*, will be ſufficiently indicated by its alarming appearance and rapid increaſe, and by the ſoft pappy feel of the cake to the touch; though, when there is little dilatation of the os tincæ, it will

be neceſſary to introduce the whole hand into the vagina, in order more certainly to be able to feel the placenta with a finger introduced within the os internum.

In theſe unhappy caſes, there is no method of ſaving the woman but by immediate delivery.

We are ſometimes obliged to paſs the hand at an opening made through the body of the placenta; but, if poſſible, the hand ſhould rather be inſinuated at the ſide of the cake, where the leaſt portion is attached, to go into the uterus, break the membranes, ſearch for the child's feet, bring them down, and deliver.

In ſome inſtances, before the orificium uteri can be ſufficiently opened to admit the hand of the operator to paſs, the whole cake will actually be diſengaged and protruded; but the ſeparation and expulſion of the placenta, previous to the birth of the child, is, for the moſt part, fatal to the mother: though ſome caſes have occurred where the woman has been ſaved by nature; the pains being

being so strong, that the child has been forced down with the placenta before it.

Much of our success, in these alarming cases of flooding, will depend on *staying with the woman*, and trying the *dilatability* of the orificium uteri from time to time; for, after she is sunk to a certain degree, the muscular fibres of that organ lose their contractile power, the flow of blood increases, and, if neglected, she soon dies; so that the presence of the operator can only save her*.

In cases so strictly critical and hazardous, two practitioners should, therefore, be called, for *one* ought to be in constant waiting.

SECTION IV.

CONVULSIONS.

CONVULSIONS sometimes occur during labour, as well as during the latter months of gestation.

Their

* See Mr Rigby's valuable treatise on this subject.—See also Dr Leak's Observations on the Nature and Treatment of Uterine Hæmorrhagies before and after delivery; Practical Observations on the Child-Bed Fever, &c. 5th edition, p. 258.

Their approach is commonly announced by violent pain in the head or ſtomach, or by depraved or impaired viſion, or by low delirium.

The event of all theſe caſes is exceedingly precarious; for ſometimes the patient is ſuddenly carried off by a ſingle fit.

When convulſions occur in a ſtate of inanition, they may, in general, be conſidered as the harbingers of death. In ſuch deſperate caſes, no remedy has hitherto been diſcovered. Animal transfuſion has been ſuggeſted; but experiments have not yet confirmed the propriety of having recourſe to ſo extraordinary an expedient.

Convulſions in a plethoric, or in the ordinary ſtate of ſyſtem, although exceedingly dangerous, ought not to be regarded as hopeleſs; for it is often in the power of the practitioner to remove the fits.

When the threatening ſymptoms of the diſeaſe are obſerved, blood-letting ſhould be immediately performed, and the free admiſſion of pure cool air into the bed-chamber ought to be encouraged.

Should the fits neverthelefs fupervene, venæfection ought again to be had recourfe to, and a fuitable plug forced in between the jaws, to prevent the tongue from being injured. The exciting caufe of the fits ought, if poffible, to be removed.

Although, by thefe means, the violence of the fits may be moderated, or their recurrence apparently prevented, the fafety of the patient cannot be depended on, until delivery be accomplifhed; and, therefore, that is to be effected by the moft expeditious means.

SECTION V.

RUPTURED UTERUS.

THE uterus fometimes burfts during labour, and the child efcapes partially or wholly into the cavity of the abdomen.

Than this, a more alarming or fatal accident cannot happen during parturition, as

as both mother and child are commonly loſt.

Certain ſymptoms, in general, precede this accident, and announce its approach.

Theſe are exceſſively ſtrong and frequent labour-throes, with violent excruciating pain on one part of the uterus, and reſiſtance to the paſſage of the child. During one of theſe pains, the uterus gives way; and of this the patient is uſually ſenſible. From that period, the labour-throes ceaſe entirely.

The laceration is, in ſome caſes, in a longitudinal direction; in others, in a tranſverſe one; and in ſome oblique. A beautiful plate, repreſenting the tranſverſe laceration, has been publiſhed by Dr Denman.

After the accident has happened, the ſymptoms generally unequivocally indicate what has taken place. The patient is inſtantly affected with vomiting; a diſcharge of blood from the vagina is obſerved. She becomes breathleſs; her pulſe grows exceedingly quick; coldneſs of the extremities ſupervenes; and ſhe gradually ſinks; or

ſudden

ſudden deliquium, or convulſions, being induced, ſhe is at once carried off. On examination, it is commonly found that the former preſenting part of the child has receded, or that the limbs of the infant can be felt diſtinctly through the parietes of the abdomen. In Scott's caſe, however, (already detailed), none of theſe pathognomonic ſymtoms occurred.

When laceration of the uterus is threatened, the object of the practitioner ought to be, to ſuſpend, if poſſible, the labour-throes, and to remove the reſiſtance to the expulſion of the child. With this intention, venæſection; and large doſes of opium, are to be employed, and if the obſtacle to delivery ariſe from deformity of the pelvis, the ſuitable means muſt be had recourſe to.

Where the laceration has actually taken place, and the child has eſcaped into the abdomen, the only probable method by which the life of the patient can be preſerved is immediate delivery.

Againſt this practice it has been objected, that any attempt to deliver muſt be productive of additional danger, by increaſing the extent of the laceration.

Expe-

Experience has, however, clearly proved, that even although the laceration be enlarged, the patient may recover; whereas it cannot be imagined, that a woman could ſurvive, for any length of time, the eſcape of the infant into the abdominal cavity, if it were allowed to remain there.

The following caſe, firſt inſerted in the edition of this work, publiſhed in the year 1784, affords a ſtriking example of this obſervation.

"About four years ago, in a caſe where the ſhoulder of the child had preſented in an oblique direction at the brim of the pelvis, the labour had been permitted to go on from the morning till the afternoon; the midwife had miſtaken the preſenting part for the breech; and the pains, after a few hours, became ſo ſtrong and forcing, that ſhe expected the child to be propelled with every throe. The patient ſoon after became reſtleſs; toſſing and delirium enſued.

In this ſituation, I was called in. When the patient was properly ſecured by aſſiſtants, I paſſed up my hand with difficulty, and

and discovered a considerable rent in the uterus, towards the superior lateral part of the cervix, through which the shoulder and arm of the child had escaped into the cavity of the abdomen. Every attempt to insinuate the hand so high as to reach one or both feet, with a view to bring them down and deliver, brought on an impetuous gush of blood. I was therefore obliged to deliver with the crotchet; and more readily adopted this method, as there was little reason to expect, from the history of the case, that the child was alive; it really appeared to have died the day before. After the feet and body were extracted, the first arm was readily relieved; but in bringing down the other, though every possible precaution was employed, the wound in the uterus was increased downwards to the very edge of the os tincæ.

The placenta was removed by the introduction of the hand into the uterus, on account of flooding; and some portion of intestine reduced, which had been forced through the wound of the uterus, and pro-

truded

truded at the vagina almoſt as far as the os externum. This gave me an opportunity of examining the rupture, which I found already amazingly diminiſhed by the contraction of the uterus.

I gave the patient an opiate, and took my leave, not expecting again to have ſeen her in life. She ſlept comfortably that night; complained for a few days of an uneaſy ſenſation like after-pains; on the fifth day, matter, in conſiderable quantity, appeared on the cloths at the pudendum, but without much pain. The diſcharge gradually leſſened, and her recovery otherwiſe was nearly as good as if no extraordinary accident had happened *.

If

* This caſe, I am afraid, has been miſunderſtood by Dr Douglas of London, who has publiſhed the hiſtory of a ſimilar one. The words to which I refer, and in which he has miſrepreſented my meaning, are, "the "woman's ſituation ſeemed to require her being im-"mediately delivered, *which he at firſt attempted by* "*turning. In his trials for that purpoſe*, he perceived "the uterus to be ruptured, and that a ſhoulder and "arm of the child had protruded into the cavity of "the abdomen; but having reaſon to change his in-"tention

If any additional evidence were required, to prove that delivery, after the uterus is ruptured, is not neceſſarily fatal to the mother, the reader might be referred to the hiſtories of the caſe related by Dr DOUGLAS, and that which is inſerted in the Select Caſes in Midwifery, p. 138.

The mode of delivery muſt be varied according to the exigencies of each particular caſe. An inciſion through the parietes of the abdomen, as recommended by foreign practitioners, ought only to be had recourſe to in thoſe very rare caſes where it is impracticable to bring the infant by any means through the natural paſſages.

"tention, with reſpect to turning the child, he deliver-"ed at laſt with the crotchet." By this ſtatement, it would appear that I had lacerated the uterus, whereas that accident had happened before I was called. How Dr Douglas has thus miſtaken the caſe I cannot underſtand; for the hiſtory I have already given of it, is exactly the ſame which was publiſhed in the former edition of this work, to which Dr Douglas refers, and contains the real ſtate of the caſe *.

* *Vide Obſervations on the Rupture of the Gravid Uterus, &c. by Andrew Douglas, M. D. Lond.* 1789. *p.* 30.

SECTION VI.

PROLAPSUS OF THE FUNIS UMBILICUS.

WHERE the umbilical cord is felt through the membranes, during the firſt ſtage of labour, the practitioner muſt watch carefully the dilatation of the os uteri, and, as ſoon as he can introduce his hand, he ſhould (attending to the general rules formerly explained) paſs it up and turn the child.

When any portion of the cord is protruded, after the rupture of the membranes, before a bulky part of the infant, there is hazard, unleſs the labour be very ſoon over, of the long continued preſſure interrupting the circulation, and hence proving fatal to the child.

The threatening danger can, therefore, only be prevented by replacing the cord, and retaining it above the preſenting part, till that part be forced ſo low as to occupy the whole ſpace included in the pelvis, and thereby is made to hinder the future protruſion;

trusion. The operation of turning has under such circumstances been advised: but it is commonly very difficult to reduce the cord; and after the liquor amnii is drained off, if the uterus be contracted on the body of the child, and more especially if there be frequent and strong labour throes, turning on this account is inadmissible, because there is great hazard of injuring the mother, while there is no absolute certainty of saving the infant.

The best general practice, therefore, in these cases, is to attempt in the gentlest manner to reduce the cord, during the absence of a pain, completely beyond the presenting part; and to retain it so, by plugging up the passage, through which it had escaped, by means of a piece of soft linen rag. And, if these attempts fail, nothing else should be done until the presenting part be so low as to enable the practitioner to accelerate the delivery by means of Lowder's lever or the forceps.

When the cord is felt to be quite destitute of pulsation, to be cold and flaccid, such

a probability of the child's death is indicated, as to render it unwarrantable in the operator to adopt any means to accompliſh the delivery which can in the moſt remote degree tend to injure the mother.

In ſome caſes the infant is born alive, notwithſtanding the protruſion of the cord, although no interference whatever be attempted.

Many of the ſubjects conſidered in the preceding ſheets cannot be perfectly underſtood without conſulting plates. The ſuperb work of Dr Hunter, and the uſeful, though far leſs ſplendid, one of Dr Smellie, are referred to for this purpoſe. Some beautiful engravings, publiſhed by Dr Denman, may alſo be conſulted.

FINIS.

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